

1977

OPERATING SUMMARY

WATER POLLUTION CONTROL PROJECTS



Ontario

Ministry of the
Environment

George R. McCague, Minister
Kenneth H. Sharpe, Deputy Minister

Great Lakes Surveys Unit
Water Resources Branch
Ministry of the Environment
135 St. Clair Avenue West
Toronto, Ontario, Canada
M4V 1P5

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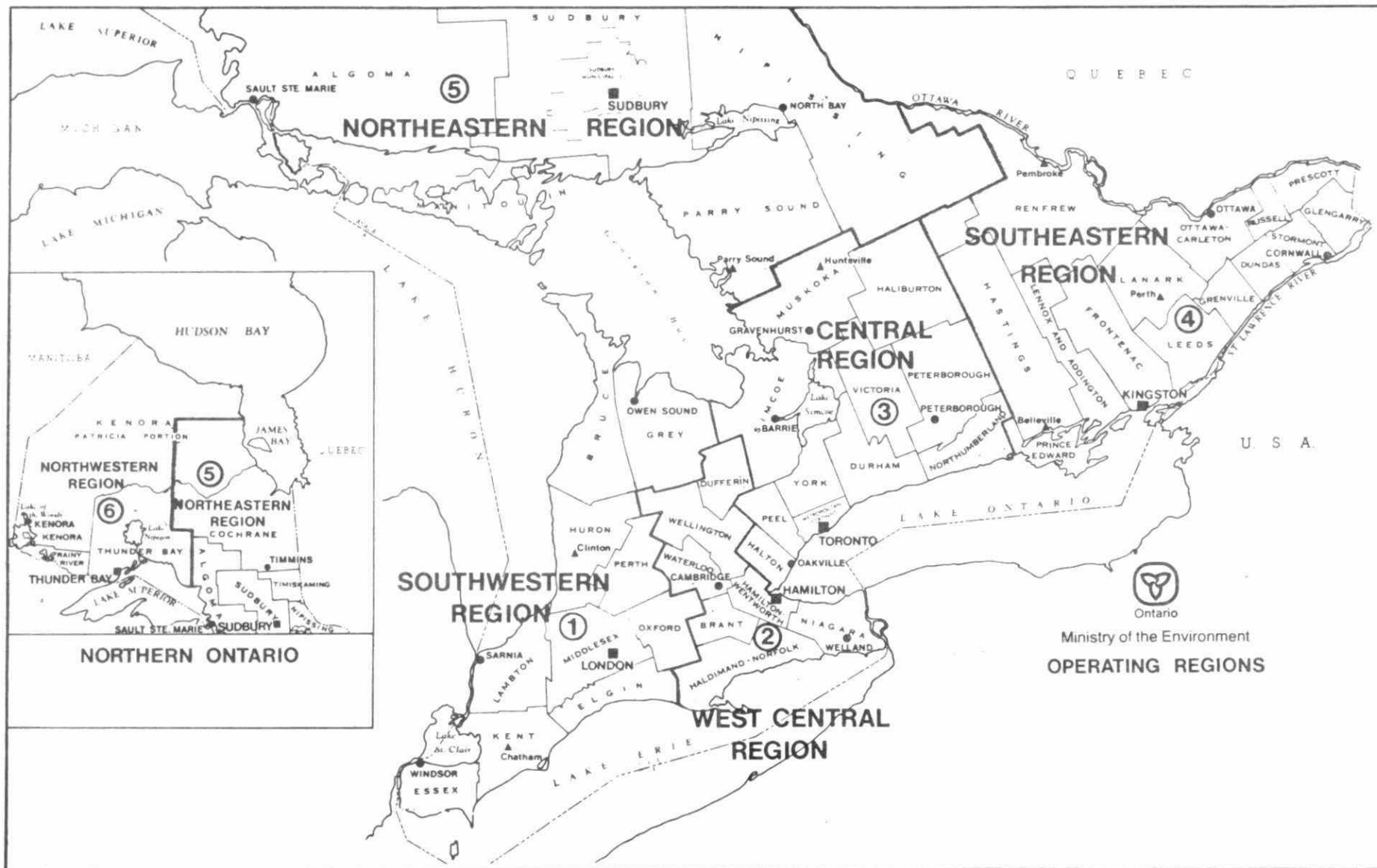


WATER POLLUTION CONTROL PROJECTS

operated by the Ministry of the Environment

prepared by: Municipal and Private Section
Pollution Control Branch

416/965-1655



foreword

The Ministry of the Environment is concerned with the protection and enhancement of the natural environment. And to meet this objective, one of its goals is to ensure the sound management of wastes and water resources across the province. In this regard, the Ministry inspects and regulates all communal water and wastewater facilities, and monitors the performance of the treatment plants and their effluent qualities with routine and special sampling programs. The administration of these services and programs is carried out on a regional basis.

Normally, the responsibility for the provision of communal water and wastewater services lies with the individual municipalities. However, by special arrangement, more than 281 water and wastewater facilities in the Province of Ontario are administered and operated by the six Regional Utility Operations sections of the Ministry of the Environment. In order to maintain operational control and long term evaluation of these provincially-operated facilities, up-to-date statistics are maintained on process parameters and operating costs for each plant, and an annual 'Operating Summary' of these statistics is traditionally produced.

In the near future the scope of this statistical data base will be slightly modified and the data collection will be extended to cover the municipally-operated treatment plants as well, so that all water and wastewater treatment facilities in the Province of Ontario will be included in the 'Operating Summaries'.

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introduction

This summary has been compiled from data collected, during 1977, from 103 mechanical treatment plants and 92 waste stabilization ponds.

During the year a total of 71 billion gallons of wastewater was treated in these facilities, 65 billion gallons in mechanical treatment plants and 6 billion gallons in waste stabilization ponds. The cost of operating the 103 mechanical treatment plants was 15.7 million dollars and for the 92 waste stabilization ponds, 1.1 million dollars. In some cases the total expenditure will not fully reflect the cost of operating the facility because of cost apportionment of shared resources and rebates for nutrient removal studies.

projects included in report

PROJECT	CAPACITY mgd	REC'G WATER	OPT'G DATA page	PROJECT	CAPACITY mgd	REC'G WATER	OPT'G DATA page
<u>PRIMARY TREATMENT PLANTS</u>				<u>CONVENTIONAL ACTIVATED SLUDGE PLANTS (cont'd)</u>			
<u>Region I - Southwestern</u>				<u>Region II - West Central (cont'd)</u>			
1. Owen Sound	3.0	Owen Sound	44	25. Fergus	1.1	Grand R.	129
2. Point Edward	.57	St. Clair River	47	26. Haldimand(Caledonia)	0.5	Grand R.	132
<u>Region II - West Central</u>				27. Haldimand(Hagersville)	0.2	Sandusk Cr.	135
3. Nanticoke(Port Dover)	2.1	Lake Erie	52	28. Kitchener	13.5	Grand R.	138
<u>Region III - Central</u>				29. Simcoe	2.0	Lynn R.	141
4. Midland	1.25	Georgian Bay	56	30. Waterloo	6.0	Grand R.	144
<u>Region IV - Southeastern</u>				31. Woolwich Twp. (Elmira)	.68	Canangagique Cr.	147
5. Cornwall	8.25	St. Lawrence Rd.	60	<u>Region III - Central</u>			
6. Prescott	1.0	St. Lawrence R.	63	32. Burlington D. L.	2.5	Lake Ontario	152
<u>Region V - Northeastern</u>				33. Burlington E. G.	.75	Lake Ontario	155
7. Espanola	.66	Spanish River	68	34. Campbellford	1.0	Trent R.	158
8. Mattagami (Timmins)	3.0	Mattagami R.	71	35. Halton Hills(Georgetown)	1.5	Silver Cr.	161
9. Parry Sound	.83	McCurry Lake	74	36. Huntsville	3.0	Muskoka R.	164
10. Sault Ste. Marie	12.0	St. Marys R.	77	37. South Peel - Lakeview	50.	Lake Ontario	167
<u>Region VI - Northwestern</u>				<u>Region IV - Southeastern</u>			
11. Fort Frances	2.0	Rainy R.	82	38. Belleville	8.0	Bay of Quinte	172
12. Thunder Bay N.	4.0	McIntyre R.	85	39. Kingston Twp.	2.42	Lake Ontario	175
13. Thunder Bay S.	6.0	Kaministikwia R.	88	40. Sidney Twp.	.12	Trent R.	178
<u>CONVENTIONAL ACTIVATED SLUDGE PLANTS</u>				41. Trenton	3.5	Bay of Quinte	181
<u>Region I - Southwestern</u>				<u>Region V - Northeastern</u>			
14. Chatham	4.5	Thames R.	94	42. North Bay	8.0	L. Nipissing	186
15. Ingersoll	2.25	Thames R.	97	43. Sturgeon Falls	1.0	L. Nipissing	189
16. St. Marys	.85	Thames R.	101	44. Valley East	2.5	Vermillion R.	192
17. Tillsonburg	1.8	Otter Creek	104	<u>EXTENDED AERATION PLANTS</u>			
18. Van Astra	.45	Ditch to Bayfield R.	107	<u>Region I - Southwestern</u>			
19. Wallaceburg	1.5	Sydenham R.	110	45. Belle River	1.5	L. St. Clair	198
<u>Region II - West Central</u>				46. Moore Twp. (Corunna)	.32	St. Clair R.	201
20. Brantford	12.5	Grand R.	114	47. Moore Twp. (Courtright)	.125	St. Clair R.	204
21. Cambridge (Galt)	8.5	Grand R.	117	48. Paisley	.155	Saugeen R.	207
22. Cambridge (Preston)	3.7	Grand R.	120	49. Southampton	.29/.67	Saugeen R.	210
23. Delhi Twp. (Delhi)	0.7	Big Creek	123	50. Westminster Twp.	.25	Dingman Cr.	213
24. Dunnville	1.7	Grand R.	126	<u>Region II - West Central</u>			
				51. Elora	.083	Grand R.	218
				52. Grand Valley	.13	Grand R.	221
				53. Haldimand (Cayuga)	.2	Grand R.	224

PROJECT	CAPACITY mgd	REC'G WATER	OPT'G DATA page	PROJECT	CAPACITY mgd	REC'G WATER	OPT'G DATA page
<u>EXTENDED AERATION PLANTS (cont'd)</u>				<u>CONTACT STABILIZATION PLANTS</u>			
<u>Region II - West Central (cont'd)</u>				<u>Region III - Central</u>			
54. Paris	.5	Grand R.	227	86. Port McNicoll	.23	Georgian Bay	332
55. Wellesley Twp. (Wellesley)	0.11	Nith R.	230	<u>Region V - Northeastern</u>			
56. Wilmot Twp. (Baden)	.2	Cr. to Nith R.	233	87. Haileybury	.35	L. Timiskaming	336
57. Woolwich Twp. (St. Jacobs)	.21	Grand R.	236	88. Iroquois Falls	.9	Abitibi R.	339
<u>Region III - Central</u>				89. Kirkland Lake	3.	Murdock Cr.	342
58. Alliston	.77	Boyne R.	240	90. Moosonee	.11	Store Cr.	345
59. Burlington Skyway	6.	Hamilton Harbour	243	91. Whitney and Tisdale	.75	Porcupine R.	348
60. Coldwater	.12	Coldwater R.	246	<u>Region VI - Northwestern</u>			
61. Fenelon Falls	.22	Sturgeon L.	249	92. Ear Falls	.2	English R.	352
62. Hastings	.233	Trent R.	252	93. Longlac Twp.	.21	Suicide L.	355
63. Norwood	.16	Ouse R.	255	94. Red Lake	.25	Howey Bay	358
64. S. Peel - Clarkson	10.	Lake Ontario	258	<u>HIGH RATE ACTIVATED SLUDGE PLANTS</u>			
<u>Region IV - Southeastern</u>				<u>Region I - Southwestern</u>			
65. Bancroft	.26	York R.	262	95. Meaford	.86	Georgian Bay	364
66. Barry's Bay	.273	Kaminiskeg L.	265	<u>Region II - West Central</u>			
67. Chalk River	.08	Black Duck Cr.	268	96. Cambridge (Hespeler)	2.	Grand R.	368
68. Deseronto	.3	Lake Ontario	271	97. Palmerston	.25	Maitland R.	371
69. Eganville	.17	Bonnchere R.	274	<u>Region III - Central</u>			
70. Ernestown (Odessa)	.2	Millhaven Cr.	277	98. Bradford	.80	Schomberg R.	376
71. Frankford	.54	Trent R.	279	<u>Region IV - Southeastern</u>			
72. L'Orignal	.19	Ottawa R.	282	99. Carleton Place	1.2	Mississippi R.	380
73. Marmora	.19	Crowe R.	285	<u>Region V - Northeastern</u>			
74. Merrickville	.11	Rideau R.	288	100. Sudbury	11.25	Junction Cr.	384
75. Pittsburgh Twp. (Cana)	.25	Cataraqui R.	291	<u>TERTIARY TREATMENT PLANTS</u>			
<u>Region V - Northeastern</u>				<u>Region I - Southwestern</u>			
76. Black River - Matheson	.15	Black R.	296	101. Stratford	6.0	Avon R.	390
77. Chelmsford	1.2	Whitson Cr.	299	<u>Region II - West Central</u>			
78. Latchford	.75	Montreal R.	302	102. Orangeville	1.5	Credit R.	394
79. Nickel Centre (Coniston)	.35	Coniston Cr.	305	<u>Region III - Central</u>			
80. Rayside-Balfour (Azilda)	.63	Whitson Cr.	308	103. Dysart, et al Twp. (Haliburton)	.21	Drag R. (Grass L.)	398
81. Smooth Rock Falls	.36	Mattagami R.	311				
<u>Region VI - Northwestern</u>							
82. Geraldton	.4	Little Long Lac	316				
83. Ignace Twp.	.14	Agimac Cr.	319				
84. Pickle Lake	.2	Kawinogans R.	322				
85. Schreiber	.25	Cooks L.	325				

PROJECT	ACREAGE	REC'G WATER	OPT'G DATA page	PROJECT	ACREAGE	REC'G WATER	OPT'G DATA page
<u>AERATED LAGOONS</u>				<u>WASTE STABILIZATION PONDS (cont'd)</u>			
<u>Region I - Southwestern</u>				<u>Region I - Southwestern (cont'd)</u>			
104. Durham	.7	Saugeen R.	404	133. Mitchell's Bay	10	Confined	441
105. Kincardine	32	Georgian Bay	405	134. Moore Twp. (Brigden)	20	Bear Cr.	442
106. Listowel	70.8	Chapman Dr.	406	135. Norwich	30	Big Otter Cr.	443
107. Thornbury	24.24	Beaver R.	407	136. Oil Springs	14	Black Cr.	444
<u>Region II - West Central</u>				137. Petrolia	32	Sydenham R.	445
108. Nanticoke (Waterford)	18.7	Nanticoke R.	410	138. Port Stanley	40	Lake Erie	446
<u>Region III - Central</u>				139. Ridgetown	39.5	Thames R.	447
109. Stayner	20	Lamont Cr.	412	140. Rodney	16	16 Mile Cr.	448
<u>Region IV - Southeastern</u>				141. Seaforth	30	Bayfield R.	449
110. Almonte	45.7	Mississippi R.	414	142. Sombra Twp. (Pt. Lambton)	24	St. Clair R.	450
111. Gananoque	69.4	Gananoque R.	415	143. Sombra Twp. (Sombra)	24	St. Clair R.	451
<u>WASTE STABILIZATION PONDS</u>				144. Watford	30	Bear Cr.	452
<u>Region I - Southwestern</u>				145. West Lorne	20	L. Erie	453
112. Aylmer	71.9	Catfish Cr.	420	146. Wiarton	15	Georgian Bay	454
113. Belmont	16.2	Kettle Cr.	421	147. Wingham	30	Maitland R.	455
114. Chesley	17	Saugeen R.	422	148. Zurich	13	L. Huron	456
115. Comber	12	#1 Gov't. Dr.	423	<u>Region II - West Central</u>			
116. Cottam	20	Madox Dr.	424	149. Arthur	17.5	Grand R.	458
117. Dundalk	16	Grand R.	425	150. Harriston	28	Maitland R.	459
118. Dutton	10	L. Erie	426	151. Nanticoke (Jarvis)	12	Sandusk Cr.	460
119. E. Zorra-Tavistock Twp.	32	Thames R.	427	152. Norfolk (Pt. Rowan)	20	Lake Erie	461
120. Enniskillen Twp. (Oil City)	5.4	Black Cr.	428	153. Shelburne	13	Nottawasaga R.	462
121. Essex N. E.	24	Puce R. Dr.	429	154. Wilmot Twp. (N. Hamburg)	27.4	Grand R.	463
122. Essex S. W.	36	Canard R.	430	<u>Region III - Central</u>			
123. Exeter	66	Ausable R.	431	155. Beeton	15	Beeton Cr.	466
124. Forest	40	Hickory Cr.	432	156. Bracebridge	32	Muskoka R.	467
125. Glencoe	28	New Biggen Cr.	433	157. Brighton	13.6	Butler Cr.	468
126. Harrow	45	Cedar Cr.	434	158. Elmvale	4.4	Wye R.	469
127. Hensall	36.88	Ausable R.	435	159. Havelock	20	Plato Cr.	470
128. Lucan	10	Ausable R.	436	160. Lakefield	24	Otonabee R.	471
129. Markdale	14	Saugeen R.	437	161. Omemee		Spray Irrigation	472
130. Merlin (Raleigh-Tilbury E.)		Jeanettes Cr.	438	<u>Region IV - Southeastern</u>			
131. Milverton	15	Maitland R.	439	162. Alexandria	42.4	Delisle R.	474
132. Mitchell	67.5	Thames R.	440	163. Alfred	44.2	Ruiseau des Atocas	475
				164. Chesterville	14.5	South Nation R.	476

PROJECT	ACREAGE	REC'G WATER	OPT'G DATA page
<u>WASTE STABILIZATION PONDS (cont'd)</u>			
<u>Region IV - Southeastern (cont'd)</u>			
165. Ernestown(Amherstview)	44.2	L. Ontario	477
166. Goulbourn Twp.(Richmond)	36	Jock R.	478
167. Leeds & Lansdowne	12.1	La Rue Mills Cr.	479
168. Madoc	30	Moira R.	480
169. Petawawa(Pumping Station) *			481
170. Plantagenet	17	South Nation R.	482
171. Rockland	19.8	Ottawa R.	483
172. Stirling	12.6	Rawdon Cr.	484
173. Tweed Village	30.8	Moira R.	485
174. Vankleek Hill	30	Little Rideau Cr.	486
175. West Port	7	Upper Rideau L.	487
176. Winchester	16.7	Castor R.	488
<u>Region V - Northeastern</u>			
177. Black R. -Matheson(Ramore)	2.8	Black R.	490
178. Black R. -Matheson (Val Gagne)	5.0	Black R.	491
179. Bruce Mines	7.3	Creek to Georgian Bay	492
180. Burk's Falls	19	Magnetawan R.	493
181. Caldwell Twp. (Verner)	14	Verner R.	494
182. Englehart	20	Englehart R.	495
183. Fauquier Twp.(Moonbeam)	6	Groundhog R.	496
184. Haileybury (N. Cobalt)	10	Mill Cr. to L. Timiskaming	497
185. Hearst	50	Mattawishkwia R.	498
186. Little Current	10	Georgian Bay	499
187. Manitowaning	7.6	L. Huron	500
188. Mattawa	18	Mattawa R.	501
189. Michipicoten	40	Magpie R.	502
190. New Liskeard	63.7	Waubee R.	503
191. N. Himsworth(Callander)		Ditch to L. Nipissing	504
192. Powassan	7	Genesee R.	505
193. Ratter & Dunnet	20	Veuve R.	506

PROJECT	ACREAGE	REC'G WATER	OPT'G DATA page
<u>WASTE STABILIZATION PONDS (cont'd)</u>			
<u>Region V - Northeastern (cont'd)</u>			
194. Shackleton - Machin (Fauquier Twp.)	10	Groundhog R.	507
195. Webbwood	10	Spanish R.	508
<u>Region VI - Northwestern</u>			
196. Emo Twp.	10	Rainy R.	510

* Conventional Activated Sludge Plant operated by the Department of National Defence. MOE operates only the pumping station.

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list of graphs

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Water Pollution Control Plants

PLANT PERFORMANCE

LOADING

Hydraulic and organic loading data, together with design loading values are summarized in Tables I and II.

PLANT PERFORMANCE

Weighted arithmetic mean values of biochemical oxygen demands and suspended solids concentrations for plant influent are shown in Tables III and IV along with the number of samples taken. These results include both samples sent to the Ministry of the Environment laboratories and those analysed at the plant. The number of samples can be used as a relative measure of the reliability of the averages listed. In most cases the samples were 8-hour composites taken during the normal working day.

Average total phosphorus and nitrogen (free ammonia, total Kjeldahl and oxides of nitrogen) concentrations are listed in Tables V and VI.

Also in these tables are summaries of analyses for other pollutants. There is no regular sampling program for metals or phenols: the samples are taken when industrial discharges are suspected. Hence, these results should not be taken as representative of sewage characteristics throughout the year at any plant.

Table I

PLANT LOADING

PROJECT	HYDRAULIC LOADING					ORGANIC LOADING					
	DESIGN CAPACITY	AVERAGE DAILY FLOW	MAXIMUM DAYS FLOW	AVG. FLOW as % of DESIGN	% of year DAILY FLOW exceeded DESIGN	DESIGN LOADING		ACTUAL LOADING			
						in pounds per day		in pounds per day		% of DESIGN	
	MGD	million gallons	million gallons			BOD	SUSP SOLIDS	BOD	SUSP SOLIDS	BOD	SUSP SOLIDS
PRIMARY TREATMENT PLANTS											
<u>Region I - Southwestern</u>											
Owen Sound	5.4	4.4	10.0	81	11	5400	6000	4000	8700	74	145
Point Edward	0.57	0.41	0.52	72	0	970	1140	652	1500	67	132
<u>Region II - West Central</u>											
Nanticoke (Port Dover)	2.1	0.66	2.84	31	1	4410	6200	1900	3100	43	50
<u>Region III - Central</u>											
Midland	1.25	1.8	4.8	144	99	2810	3750	1300	3000	46	80
<u>Region IV - Southeastern</u>											
Cornwall	8.25	12.2	22.1	148	81	10725	13200	15000	27000	140	205
Prescott	1.00	0.96	3.01	96	35	800	1600	540	1030	68	64
Trenton	1.0	1.38	3.46	138	82	7700	6300	2100	1500	27	24
<u>Region V - Northeastern</u>											
Espanola	0.66	0.48	0.87	73	1	-	-	530	780	-	-
Mattagami Timmins	3.0	4.2	8.8	140	94	5400	6000	4700	10000	87	167
Parry Sound	0.83	0.89	2.46	107	44	2080	1660	1000	1600	48	96
Sault Ste. Marie	12.0	9.3	26.2	78	16	30000	24000	12000	13000	40	54
<u>Region VI - Northwestern</u>											
Fort Frances	2.0	2.1	4.6	105	47	2600	3600	1600	2600	62	72
CONVENTIONAL ACTIVATED SLUDGE PLANTS											
<u>Region I - Southwestern</u>											
Chatham	4.5	5.3	10.2	118	46	11300	11300	9500	16000	84	142
Ingersoll	2.25	1.12	N/A	50	0	4500	4500	1900	3900	42	87
St. Marys	0.85	0.54	2.6	64	3	-	-	1500	1100	-	-
Tillsonburg	1.8	1.01	1.52	56	0	4200	4500	1100	2100	26	47
Van Astra	3.09	0.17	1.63	55	6	-	-	88	104	-	-
Wallaceburg	1.5	0.99	2.45	66	1	3000	3750	1200	1700	40	45
<u>Region II - West Central</u>											
Brantford	12.5	9.7	17.5	78	7	21000	22000	15000	25000	71	114
Cambridge (Galt)	8.5	5.2	8.7	61	0	21000	21000	8800	8800	42	42
Cambridge (Preston)	3.71	1.7	2.6	46	0	17500	17500	8800	9700	50	55
Delhi Twp. (Delhi)	0.7	0.43	0.70	61	0	1200	1330	540	750	45	56
Dunnville	1.7	0.98	2.74	58	2	3094	-	1400	1200	45	-
Fergus	1.1	0.65	1.89	59	4	2200	2200	770	1200	35	55
Haldimand (Caledonia)	0.5	0.29	4.90	58	6	-	-	250	444	-	-
Haldimand (Hagersville)	0.2	0.37	1.85	99	-	-	-	380	600	-	-
Kitchener	13.5/28.0	14.4	21.2	107/51	67/0	40500	61000	33000	28000	81	46
Simcoe	2.0	2.3	4.8	115	62	4400	4600	5000	5600	114	122
Waterloo	10.0	5.9	10.1	59	36	18000	18200	13000	13000	72	80
Woolwich Twp. (Elmira)	0.68	0.55	2.19	81	21	2800	2100	1200	920	43	44
<u>Region III - Central</u>											
Burlington D. L.	2.5	1.6	3.0	64	3	5000	4500	2300	3900	46	87
Campbellford	1.0	1.21	2.03	121	79	2000	-	834	1400	42	-
Halton Hills (Georgetown)	1.5/3.0	2.4	4.3	160/80	99/9	3000	3000	2900	4600	97	153
Huntsville	.25/1.0	0.36	1.9	144/36	84/35	625	625	380	350	61	56
South Peel - Lakeview	50.0	31.0	65.0	62	7	150000	175000	95000	89000	63	51
<u>Region IV - Southeastern</u>											
Belleville	8.0	7.1	22.2	89	29	-	-	9500	13000	-	-
Kingston Twp.	2.42	2.4	6.2	99	35	-	-	3800	3400	-	-
Sidney Twp. (Batawa)	0.125	0.12	0.45	96	35	-	-	64	100	-	-
Trenton	3.5	3.28	6.53	94	0	7700	6300	3500	3800	45	60
<u>Region V - Northeastern</u>											
North Bay	8.0	6.9	16.6	86	18	-	-	10000	16000	-	-
Sturgeon Falls	1.0	1.5	4.2	150	94	-	-	1100	1300	-	-
Valley East	2.5	1.02	1.88	41	0	-	-	1300	2400	-	-
HIGH RATE ACTIVATED SLUDGE PLANTS											
<u>Region I - Southwestern</u>											
Meaford	0.86	0.60	2.16	70	5	-	-	414	654	-	-
<u>Region II - West Central</u>											
Cambridge (Hespeler)	2.05	0.90	3.90	44	0	4500	4100	1900	1700	42	41
Palmerston	0.25	0.25	N/A	100	-	190	150	170	400	89	267
<u>Region III - Central</u>											
Bradford	0.86	0.63	1.59	73	12	1840	2200	1300	2400	71	109
<u>Region IV - Southeastern</u>											
Carleton Place	1.2	1.3	2.2	108	71	1300	1500	250	360	19	24
<u>Region V - Northeastern</u>											
Sudbury	11.25	11.0	31.0	98	30	11000	15600	13000	13000	118	83

Table II

PLANT LOADING

PROJECT	HYDRAULIC LOADING						ORGANIC LOADING						
	DESIGN CAPACITY	AVERAGE DAILY FLOW		MAXIMUM DAY'S FLOW		AVG. FLOW as % of DESIGN	% of year DAILY FLOW exceeded DESIGN	DESIGN LOADING in pounds per day		ACTUAL LOADING in pounds per day		% of DESIGN	
		MGD	million gallons	million gallons	million gallons			BOD	SUSP SOLIDS	BOD	SUSP SOLIDS	BOD	SUSP SOLIDS
EXTENDED AERATION PLANTS													
<u>Region I - Southwestern</u>													
Belle River	1.5	0.36	0.65	24	0	-	-	160	290	-	-	-	
Mildmay	0.17	N/A	N/A	-	-	-	-	-	-	-	-	-	
Moore Twp. (Corunna)	0.32	0.29	0.53	91	17	480	480	310	280	65	58	-	
Moore Twp. (Courtright)	0.15	0.032	0.132	21	0	-	-	36	42	-	-	-	
Paisley	0.155	0.065	0.638	42	1	264	-	83	105	31	-	-	
Southampton	0.29/0.67	0.23	0.65	79/34	7/0	493/950	-	212	283	-	-	-	
Westminster Twp.	0.25	0.37	0.70	148	69	-	-	5300	11000	-	-	-	
<u>Region II - West Central</u>													
Elora	0.083	0.15	0.39	181	97	125	208	200	240	160	115	-	
Grand Valley	0.132	0.06	0.61	45	2	-	-	100	120	-	-	-	
Haldimand (Cayuga)	0.2	0.14	0.89	70	11	-	-	170	210	-	-	-	
Paris	0.5	0.47	1.12	94	32	1000	850	800	960	80	113	-	
Wellesley Twp. (Wellesley)	0.12	0.07	0.32	58	13	233	274	130	130	56	47	-	
Wilnot Twp. (Baden)	0.203	0.11	0.26	54	1	493	620	190	170	39	27	-	
Woolwich Twp. (St. Jacobs)	0.21	0.20	0.98	95	31	-	-	460	410	-	-	-	
<u>Region III - Central</u>													
Alliston	0.77	0.61	1.07	79	5	1200	-	1400	1400	117	-	-	
Burlington Skyway	12.0	13.0	31.0	108	65	12000	12500	24000	41000	200	328	-	
Coldwater	0.12	0.063	0.202	53	1	-	-	40	30	-	-	-	
Fenelon Falls	0.22	0.18	0.68	82	12	374	440	150	210	40	48	-	
Hastings	0.233	0.11	0.51	47	9	-	-	210	390	-	-	-	
Norwood	0.16	0.09	0.167	56	2	320	400	65	71	20	18	-	
South Peel (Clarkson)	12.0	10.0	19.0	83	11	22200	25000	19000	26000	86	104	-	
<u>Region IV - Southeastern</u>													
Bancroft	0.4	0.14	0.22	35	0	520	640	84	98	16	15	-	
Barry's Bay	0.273	0.063	0.103	23	0	463	-	140	120	30	-	-	
Chalk River	0.08	0.07	0.109	88	16	-	-	114	113	-	-	-	
Deseronto	0.3	0.15	0.50	50	3	590	670	250	280	42	42	-	
Eganville	0.168	0.074	0.15	44	0	1760	976	120	150	7	15	-	
Ernestown (Odessa)	0.2	N/A	N/A	-	0	-	-	-	-	-	-	-	
Frankford	0.54	N/A	N/A	-	0	510	600	-	-	-	-	-	
L'Orignal	0.19	0.109	0.59	57	84	380	475	120	190	32	40	-	
Marmora	0.191	0.086	0.32	45	2	382	382	80	80	21	21	-	
Merrickville	0.11	0.070	0.153	64	18	275	275	70	120	25	44	-	
Pittsburgh Twp. (Cana)	0.025	0.006	0.024	24	0	475	550	7	8	1	1	-	
<u>Region V - Northeastern</u>													
Black River - Matheson	0.15	0.18	0.41	120	66	-	-	70	110	-	-	-	
Chelmsford	1.25	0.57	1.14	46	0	-	-	740	1660	-	-	-	
Latchford	0.075	0.070	0.133	93	27	152	175	67	97	44	55	-	
Nickel Centre (Coniston)	0.35	0.35	1.16	100	42	700	875	370	330	53	38	-	
Rayside (Azilda)	0.65	0.40	1.14	62	15	-	-	350	500	-	-	-	
Smooth Rock Falls	0.36	Est. 0.25	N/A	69	48	-	-	-	-	-	-	-	
<u>Region VI - Northwestern</u>													
Geraldton	0.4	0.43	3.80	108	26	918	-	220	430	24	-	-	
Ignace Twp.	0.14	0.163	0.61	116	53	399	-	220	220	55	-	-	
Pickle Lake	0.2	0.074	0.16	37	0	-	-	85	30	-	-	-	
Schreiber	0.25	0.08	0.30	32	0	1125	600	130	260	12	43	-	
CONTACT STABILIZATION PLANTS													
<u>Region III - Central</u>													
Port McNicoll	0.23	0.19	0.71	83	32	391	460	140	200	36	43	-	
<u>Region V - Northeastern</u>													
Halleybury	0.35	0.52	0.85	149	96	600	700	610	980	102	140	-	
Iroquois Falls	0.9	0.86	3.29	96	4	-	-	680	1100	-	-	-	
Kirkland Lake	3.0	2.4	5.0	80	23	-	-	1200	1600	-	-	-	
Moosonee	0.112	0.12	0.16	107	61	284	320	70	120	25	38	-	
Whitney & Tisdale	0.75	0.87	2.33	116	46	1300	1500	790	1300	61	87	-	
<u>Region VI - Northwestern</u>													
Ear Falls	0.14	0.12	0.32	86	4	560	620	140	200	25	32	-	
Longlac Twp.	0.25	0.14	0.64	56	4	420	-	150	310	36	-	-	
Red Lake	0.3	0.20	0.46	67	2	510	600	140	230	27	38	-	
TERTIARY TREATMENT													
<u>Region I - Southwestern</u>													
Stratford	6.0	4.0	15.3	67	8	8400	15000	3600	5200	43	35	-	
<u>Region II - West Central</u>													
Orangeville	1.5	1.5	4.0	100	32	3000	3750	1600	2100	53	56	-	
<u>Region III - Central</u>													
Dysart et al Twp. (Haltburton)	0.21	0.027	0.063	13	0	-	-	44	92	-	-	-	

Table III

PLANT PERFORMANCE

PROJECT	BIOCHEMICAL OXYGEN DEMAND						SUSPENDED SOLIDS					
	PLANT INFLUENT		PLANT EFFLUENT		REDUCTION percent	PLANT INFLUENT		PLANT EFFLUENT		REDUCTION percent		
	NUMBER of SAMPLES	AVERAGE BOD mg/l	NUMBER of SAMPLES	AVERAGE BOD mg/l		% of samples greater than 15 mg/l	NUMBER of SAMPLES	AVERAGE S-S CONC mg/l	NUMBER of SAMPLES		AVERAGE S-S CONC mg/l	% of samples greater than 15 mg/l
PRIMARY TREATMENT PLANTS												
<u>Region I - Southwestern</u>												
Owen Sound	21	92	21	36	95	60	73	197	73	25	69	87
Point Edward	12	159	12	60	92	60	12	363	12	46	92	82
<u>Region II - West Central</u>												
Nanticoke (Port Dover)	22	292	18	64	95	78	21	472	17	74	83	84
<u>Region III - Central</u>												
Midland	12	74	12	35	92	53	12	168	11	18	50	89
<u>Region IV - Southeastern</u>												
Cornwall	20	127	17	105	94	17	52	221	49	171	100	23
Prescott	40	56	40	35	100	38	39	107	39	50	100	53
Trenton	13	154	13	116	100	25	13	106	13	94	100	11
<u>Region V - Northeastern</u>												
Espanola	25	110	24	47	96	57	25	162	24	49	100	70
Mattagami Timmins	24	111	24	62	100	44	66	245	64	77	98	69
Parry Sound	27	108	27	35	100	68	63	181	63	45	89	75
Sault Ste. Marie	95	125	95	71	98	43	175	145	175	59	99	59
<u>Region VI - Northwestern</u>												
Fort Frances	48	76	48	52	100	31	60	126	60	64	96	49
CONVENTIONAL ACTIVATED SLUDGE PLANTS												
<u>Region I - Southwestern</u>												
Chatham	64	180	60	11	6	93	255	303	255	11	5	96
Ingersoll	16	169	31	6	0	96	23	347	46	7	0	97
St. Marys	28	277	28	8	3	97	28	212	28	6	3	97
Tillsonburg	12	105	12	3	0	97	57	207	56	10	3	95
Van Astra	22	52	22	2	0	96	22	61	22	8	4	86
Wallaceburg	53	125	52	4	0	96	256	169	259	6	2	96
<u>Region II - West Central</u>												
Brantford	96	157	105	10	2	94	244	260	246	16	21	94
Cambridge (Galt)	96	170	95	13	21	92	258	170	364	18	30	89
Cambridge (Preston)	65	519	65	19	40	96	239	568	237	41	62	93
Delhi Twp. (Delhi)	11	125	11	10	17	92	62	174	67	12	7	93
Dunnville	23	148	22	7	0	95	75	119	75	21	65	82
Fergus	20	118	19	8	5	93	57	181	267	21	42	88
Haldimand (Caledonia)	17	87	10	22	54	75	24	153	26	57	100	63
Haldimand (Hagersville)	13	102	13	4	0	96	13	163	15	15	44	91
Kitchener	99	230	99	18	53	92	222	195	222	14	18	93
Simcoe	20	219	20	13	14	94	119	243	100	15	19	94
Waterloo	55	212	58	16	24	92	207	218	209	18	27	92
Woolwich Twp. (Elmira)	49	216	48	15	50	93	49	168	47	45	100	73
<u>Region III - Central</u>												
Burlington D. L.	19	141	19	12	5	91	62	246	33	14	24	94
Campbellford	22	69	20	8	0	88	72	118	62	8	10	93
Hutton Hills (Georgetown)	13	121	15	8	5	93	59	192	84	15	49	92
Huntsville	5	105	6	12	14	89	77	98	82	9	5	91
South Peel - Lakeview Pl. #1 & 2	316	305	333	19	38	94	313	287	323	27	48	91
- Lakeview Pl. #3	310	305	198	27	57	91	292	286	192	34	61	88
<u>Region IV - Southeastern</u>												
Belleville	51	134	48	14	20	89	54	186	49	16	20	91
Kingston Twp.	59	157	114	20	39	87	71	143	136	16	24	89
Sidney Twp. (Batawa)	20	53	20	13	19	75	20	84	20	33	29	61
Trenton (4 month result)	5	108	4	17	50	84	59	116	37	30	100	74
<u>Region V - Northeastern</u>												
North Bay	51	151	50	23	42	85	260	229	254	20	34	91
Sturgeon Falls	23	73	23	7	8	90	73	85	73	9	8	89
Valley East	31	133	31	17	29	87	93	245	250	7	3	97
HIGH RATE ACTIVATED SLUDGE PLANTS												
<u>Region I - Southwestern</u>												
Meaford	25	69	26	6	3	91	72	109	62	6	1	94
<u>Region II - West Central</u>												
Cambridge (Hespeler)	68	210	94	26	61	87	65	191	92	33	73	83
Palmerston	6	67	6	29	67	57	6	159	6	28	67	82
<u>Region III - Central</u>												
Bradford	12	214	12	10	23	95	326	375	12	15	23	96
<u>Region IV - Southeastern</u>												
Carleton Place	24	19	23	24	55	0	24	28	23	34	50	0
<u>Region V - Northeastern</u>												
Sudbury	28	121	30	15	37	88	79	120	126	13	13	89

Table IV

PLANT PERFORMANCE

PROJECT	BIOCHEMICAL OXYGEN DEMAND						SUSPENDED SOLIDS					
	PLANT	INFLUENT	PLANT	EFFLUENT		REDUCTION	PLANT	INFLUENT	PLANT	EFFLUENT		REDUCTION
	NUMBER of SAMPLES	AVERAGE BOD mg/l	NUMBER of SAMPLES	AVERAGE BOD mg/l	% of samples greater than 15 mg/l	percent	NUMBER of SAMPLES	AVERAGE S.S. CONC ⁿ mg/l	NUMBER of SAMPLES	AVERAGE S.S. CONC ⁿ mg/l	% of samples greater than 15 mg/l	percent
<u>EXTENDED AERATION PLANTS</u>												
<u>Region I - Southwestern</u>												
Belle River	15	44	7	2	0	95	13	80	16	9	6	88
Mildmay	-	-	-	-	-	-	-	-	-	-	-	-
Moore Twp. (Corunna)	61	107	61	9	1	91	61	95	67	8	1	91
Moore Twp. (Courtright)	14	114	12	4	0	96	14	130	12	10	15	92
Paisley	24	127	23	8	4	93	24	162	23	9	4	94
Southampton	12	92	12	3	0	97	12	123	12	7	2	94
Westminster Twp.	20	142	21	9	9	93	20	288	21	9	0	96
<u>Region II - West Central</u>												
Elora	19	136	19	28	50	79	67	162	212	49	82	70
Grand Valley	25	167	24	5	4	85	83	199	82	10	12	95
Haldimand (Cayuga)	13	123	13	5	7	96	13	151	13	10	7	93
Paris	4	171	4	34	100	80	13	205	13	68	92	67
Wellesley Twp. (Wellesley)	23	183	25	14	36	92	45	188	49	40	92	79
Wilnot Twp. (Baden)	25	171	25	4	0	98	25	152	25	9	8	94
Woolwich Twp. (St. Jacobs)	24	231	23	24	54	90	47	205	48	75	38	63
<u>Region III - Central</u>												
Alliston	10	226	10	7	10	97	50	224	83	27	54	86
Burlington Skyway	21	183	21	16	41	91	21	318	21	16	24	95
Coldwater	11	55	11	5	0	91	11	44	11	16	45	64
Fenelon Falls	43	82	47	5	0	94	43	115	47	18	19	84
Hastings	14	192	16	16	38	92	12	362	15	28	60	92
Norwood	14	72	14	7	0	90	14	79	12	9	8	89
South Peel (Clarkson)	87	195	85	6	0	97	87	258	86	10	9	96
<u>Region IV - Southeastern</u>												
Bancroft	27	60	26	5	0	92	28	70	26	17	50	76
Barry's Bay	39	222	41	38	61	83	39	185	41	47	100	75
Chalk River	19	163	19	26	79	84	19	161	19	50	95	69
Deseronto	40	166	40	8	0	95	40	189	40	8	0	96
Eganville	35	153	33	6	0	96	35	208	33	14	12	93
Ernestown (Odessa)	11	51	11	11	7	78	11	55	11	24	25	56
Frankford	18	58	18	14	56	76	18	74	18	34	88	54
L'Orignal	32	110	27	8	4	93	37	173	51	15	47	91
Marmora	18	92	18	12	11	87	17	96	18	25	47	74
Merrickville	27	101	27	8	0	92	28	169	28	21	33	88
Pittsburgh Twp. (Cana)	39	119	39	15	23	87	53	131	54	24	56	82
<u>Region V - Northeastern</u>												
Black River-Matheson	25	38	25	4	0	89	25	61	24	10	4	84
Chelmsford	25	130	25	7	84	95	123	287	225	10	7	97
Latchford	23	96	23	6	0	94	39	139	35	26	80	81
Nickel Centre (Coniston)	14	107	14	14	33	87	218	94	211	13	14	86
Rayside-Balfour (Azilda)	24	87	24	4	0	95	77	124	77	7	0	94
Smooth Rock Falls	16	75	16	4	0	95	66	71	70	6	0	92
<u>Region VI - Northwestern</u>												
Geraldton	20	52	21	6	5	88	20	100	21	49	55	51
Ignace Twp.	8	137	15	6	0	95	8	136	16	13	6	90
Pickle Lake	5	115	5	47	100	59	5	37	5	28	60	24
Schreiber	8	164	8	17	44	89	8	328	8	37	78	88
<u>CONTACT STABILIZATION PLANTS</u>												
<u>Region III - Central</u>												
Port McNicoll	11	71	11	5	0	93	11	104	11	12	0	88
<u>Region V - Northeastern</u>												
Halleybury	25	119	23	15	13	87	28	189	27	23	33	88
Iroquois Falls	23	79	28	17	43	79	69	125	81	13	6	90
Kirkland Lake	24	50	24	13	21	74	77	69	76	16	29	77
Moosonee	6	59	6	25	100	58	6	100	6	21	57	79
Whitney & Tisdale	20	91	37	10	16	89	7	154	88	13	23	92
<u>Region VI - Northwestern</u>												
Ear Falls	11	117	11	7	8	94	11	170	11	20	55	88
Longlac Twp.	18	112	17	7	11	93	18	225	18	5	5	97
Red Lake	14	71	14	13	13	81	14	117	14	17	30	85
<u>TERTIARY TREATMENT</u>												
<u>Region I - Southwestern</u>												
Stratford	118	89	116	4	0	95	120	130	114	3	0	97
<u>Region II - West Central</u>												
Orangeville	25	107	25	4	4	96	88	138	90	5	0	96
<u>Region III - Central</u>												
Dysart et al Twp. (Haliburton)	20	163	16	17	35	90	20	345	19	56	75	84

Table V

OTHER MACRO-NUTRIENTS

OTHER POLLUTANTS

PROJECT	NUMBER OF SAMPLES		OTHER MACRO-NUTRIENTS				OTHER POLLUTANTS							
			TOTAL PHOSPHORUS		AMMONIA		TOTAL KJELDAHL NITROGEN		NITRITE / NITRATE		MBAS		CHLORIDE	
			INFLUENT mg/l P	EFFLUENT mg/l P	INFLUENT mg/l N	EFFLUENT mg/l N	INFLUENT mg/l N	EFFLUENT mg/l N	INFLUENT mg/l N	EFFLUENT mg/l N	INF	EFF	INF	EFF
PRIMARY TREATMENT PLANTS														
Region I - Southwestern														
Owen Sound	21	19	4.2	1.0	16	9	26	16	0.04/1.4	0.10/1.2	2.2	-	-	-
Point Edward	12	6	12.3	2.5	23	19	37	27	0.01/0.1	0.08/0.1	-	-	59	121
Region II - West Central														
Nanticoke (Port Dover)	22	17	9.1	0.9	25	14	45	22	0.04/0.2	0.10/1.0	-	-	-	-
Region III - Central														
Midland	12	10	14.3	4.9	14	8	16	16	0.12/0.14	0.38/2.8	3.6	2.6	-	-
Region IV - Southeastern														
Cornwall	53	16	4.6	4.4	4	3	13	13	- /0.2	- /0.2	-	-	-	-
Prescott	38	20	3.5	1.3	-	-	13	12	-	-	-	-	-	-
Trenton	31	14	5.8	1.6	-	-	23	19	-	-	1.5	1.4	-	-
Region V - Northeastern														
Espanola	25	25	6.3	4.2	-	-	35	26	-	-	5.0	3.0	-	-
Mattagami Timmins	24	24	6.8	2.3	25	13	37	27	0.01/0.1	0.07/0.3	-	-	-	-
Parry Sound	155	10	5.8	1.9	10	10	21	19	0.06/0.2	0.06/0.6	2.3	2.3	-	-
Sault Ste. Marie	12	12	8.4	4.4	16	15	27	24	0.01/0.1	0.03/0.1	3.7	3.1	61	59
Region VI - Northwestern														
Fort Frances	11	10	3.6	2.8	-	-	20	17	-	-	-	-	-	-
CONVENTIONAL ACTIVATED SLUDGE PLANTS														
Region I - Southwestern														
Chatham	58	8	16.0	1.0	14	5	29	7	0.07/0.5	3.2/3.8	-	-	-	-
Ingersoll	14	8	8.9	1.7	33	0.5	46	1.4	0.01/0.3	0.41/23.1	-	-	-	-
St. Marys	28	24	6.1	1.2	15	7	29	9	0.01/0.1	0.27/2.1	-	-	-	-
Tillsonburg	12	12	7.0	0.7	20	16	29	2.5	0.01/0.1	0.02/19.2	-	-	-	-
Van Astra	16	15	3.0	0.4	-	-	17	1.2	-	-	-	-	-	-
Wallaceburg	17	7	5.6	0.9	25	17	30	8.6	0.46/0.1	0.62/7.6	-	-	-	-
Region II - West Central														
Brantford	91	10	6.9	1.4	11	7	24	10.0	0.02/0.1	0.77/1.8	4.5	0.4	-	-
Cambridge (Galt)	90/179	11	6.3	2.1	19	11	31	15	0.01/0.1	0.33/2.9	7.9	0.8	-	-
Cambridge (Preston)	51/77	17	6.0	0.9	18	9	50	13	0.04/0.1	0.30/2.0	5.2	0.2	-	-
Delhi Twp. (Delhi)	17/20	8	6.7	0.3	36	13	43	13	0.01/0.1	0.24/6.3	5.3	0.3	-	-
Dunnville	23/104	23	4.1	0.8	10	2	21	4	0.12/0.2	0.61/7.3	3.4	0.3	-	-
Fergus	20/18	20	6.7	1.1	22	2	35	4	0.02/0.12	1.10/13.0	4.3	0.4	-	-
Haldimand (Caledonia)	15/7	6/1	3.3	1.7	-	-	18	17	-	-	-	2.6	-	-
Haldimand (Hagersville)	13/11	11	5.4	0.3	16	4	23	5	0.03/0.1	0.13/4.5	3.1	0.2	-	-
Kitchener	9/255	9	7.7	1.1	21	3	34	7	0.01/0.1	1.92/11.1	3.6	0.5	-	-
Simcoe	51/40	10	6.8	0.8	14	4	27	5	0.05/0.1	0.17/1.8	-	-	-	-
Waterloo	92/166	10	6.0	0.9	20	2	29	3	0.01/0.3	1.19/9.8	3.2	0.3	-	-
Woolwich Twp. (Elmira)	49/46	49	6.5	2.5	34	20	48	20	0.68/1.3	1.65/13.8	3.8	0.7	-	-
Region III - Central														
Burlington D.L.	38/36	19	5.9	1.0	19	2	35	4	0.02/0.1	0.2/9.0	4.0	0.1	123	137
Campbellford	22/20	1/22	2.9	1.1	16	0.1	17	4	0.01/0.1	0.05/9.5	1.5	0.1	-	-
Halton Hills (Georgetown)	13/86	11	6.2	1.7	19	14	30	15	0.02/0.2	0.49/0.5	1.3	0.8	-	-
Huntsville	5	5	7.1	1.3	-	-	34	16	-	-	4.4	0.1	-	-
South Peel-Lakeview Pl. #1 & 2	97/129	24	8.0	1.9	19	1.2	37	13	0.01/0.1	0.33/3.8	-	-	157	150
Pl. #3	93/64	0	8.0	1.8	-	-	-	-	-	-	-	-	-	-
Region IV - Southeastern														
Belleville	53	9	6.0	0.7	-	-	29	8	-	-	-	-	-	-
Kingston Twp.	82/162	2/18	5.6	1.7	50	9	42	18	0.02/1.22	6.38/29.0	-	-	-	-
Sidney Twp. (Batawa)	142	142	4.8	1.0	-	-	21	3	-	-	-	-	-	-
Region V - Northeastern														
North Bay	76/78	2	6.4	1.1	-	-	30	9	-	-	3.6	0.3	-	-
Sturgeon Falls	23	23	3.3	0.6	10	4	20	7	0.07/0.05	0.06/4.1	2.7	0.6	-	-
Valley East	31	26	8.7	7.3	-	-	49	30	-	-	7.4	0.4	-	-
HIGH RATE ACTIVATED SLUDGE PLANTS														
Region I - Southwestern														
Meaford	26	24	4.3	2.0	13	0.8	21	2	0.05/0.2	0.2/8.5	-	-	-	-
Region II - West Central														
Cambridge (Hespeler)	42/67	11/34	4.7	0.8	20	13	33	17	0.03/0.1	0.5/1.4	4.1	0.6	-	-
Palmerston	6	6	4.4	4.2	-	-	14	13	-	-	0.4	0.2	-	-
Region III - Central														
Bradford	12	2/12	10.7	1.1	19	3	44	7	0.02/0.01	0.5/4.2	-	-	-	-
Region IV - Southeastern														
Carleton Place	153/170	22	2.9	1.4	-	-	6.8	5.3	-	-	-	-	-	-
Region V - Northeastern														
Sudbury	12	12	5.4	2.0	19	8	29	10	-	-	-	-	157	115

Table VI

OTHER MACRO-NUTRIENTS

OTHER POLLUTANTS

PROJECT	NUMBER of SAMPLES		OTHER MACRO-NUTRIENTS				OTHER POLLUTANTS							
			TOTAL PHOSPHORUS		AMMONIA		TOTAL KJELDAHL NITROGEN		NITRITE / NITRATE		M B A S		CHLORIDE	
			INFLUENT mg/l P	EFFLUENT mg/l P	INFLUENT mg/l N	EFFLUENT mg/l N	INFLUENT mg/l N	EFFLUENT mg/l N	INFLUENT mg/l N	EFFLUENT mg/l N	INF	EFF	INF	EFF
<u>EXTENDED AERATION PLANTS</u>														
<u>Region I - Southwestern</u>														
Belle River	6	6	2.5	1.2	14	0.1	15	0.6	- /0.1	- /12.5	-	-	-	-
Moore Twp. (Corunna)	9	8	7.5	1.0	-	-	47	0.7	-	-	-	-	-	-
Moore Twp. (Courtright)	12	9	9.3	2.1	-	-	44	1.1	-	-	-	-	-	-
Paisley	23	8	7.4	3.4	34	6	42	3.2	0.06/0.1	0.07/20.7	-	-	-	-
Southampton	19	18	3.9	3.2	15	0.2	23	0.8	0.01/0.1	0.01/16.5	-	-	-	-
Westminster Twp.	20	20	7.5	1.4	22	5.2	39	7.6	0.04/0.1	1.3/7.6	-	-	-	-
<u>Region II - West Central</u>														
Elora	19	18	9.5	2.6	32	19	49	23	0.05/0.14	0.24/0.54	4.7	0.3	-	-
Grand Valley	25	22	8.4	2.4	38	5	54	6	0.2/1.1	0.6/12.7	-	-	-	-
Haldimand (Cayuga)	13	12	7.2	0.6	36	0.1	44	2	0.2/0.7	0.03/21.7	8.8	0.1	-	-
Paris	2/14	2	5.0	2.3	14	9	28	14	0.06/0.1	0.5/1.5	-	-	-	-
Wellesley Twp. (Wellesley)	40	2	8.1	2.1	39	0.3	48	2	0.5/0.2	0.08/7.7	3.2	1.0	-	-
Wilmot Twp. (Baden)	27/57	22	9.1	0.9	18	0.5	34	1	0.03/0.03	0.03/8.9	3.8	0.1	-	-
Woolwich Twp. (St. Jacobs)	42/39	3	8.4	3.3	9	7	20	9	0.01/0.1	0.03/0.3	2.5	0.1	-	-
<u>Region III - Central</u>														
Alliston	10	9	9.4	6.1	-	-	28	2	-	-	4	0.3	-	-
Burlington Skyway	45	21	7.4	0.8	20	8	39	9	0.02/0.1	0.7/2.5	1.2	0.1	130	113
Coldwater	11	10	3.2	4.3	17	1	22	3	0.03/0.2	0.3/18.0	2.0	0.1	-	-
Fenelon Falls	43	43	5.4	1.3	19	15	28	4	0.02/0.1	0.08/12.0	3.9	0.2	-	-
Hastings	12	10	6.2	4.9	14	12	37	18	0.11/0.9	1.01/4.4	0.7	1.0	-	-
Norwood	14	14	4.6	1.7	-	-	22	6	-	-	0.9	0.2	-	-
South Peel (Clarkson)	79	20	7.7	1.7	19	0.2	34	2	0.12/0.6	0.03/12.6	1.6	0.1	164	139
<u>Region IV - Southeastern</u>														
Bancroft	28	21	4.7	3.5	-	-	21	2	-	-	-	-	-	-
Barry's Bay	22	36	11.3	4.2	44	2.0	62	7	4.5/1.3	18.4/27.9	-	-	-	-
Chalk River	19	17	8.7	5.4	-	-	46	11	- /2.3	- /14.1	-	-	-	-
Deseronto	39	7	5.6	3.3	-	-	31	1	-	-	-	-	-	-
Eganville	34	20	8.0	5.6	-	-	39	2	1.4/0.9	2.3/13.0	-	-	-	-
Ernestown (Odessa)	11	11	3.2	1.2	-	-	19	4	-	-	-	-	-	-
Frankford	300	14	4.4	1.2	-	-	20	4	-	-	-	-	-	-
L'Orignal	11	10	11.4	4.7	-	-	56	1	- /0.2	- /22.4	-	-	-	-
Marmora	103	15	2.7	0.5	-	-	30	4	-	-	-	-	-	-
Merrickville	30	25	7.4	0.8	-	-	28	2	-	-	-	-	-	-
Pittsburgh Twp. (Cana)	27/28	20	5.8	3.2	-	-	26	5	- /3.7	- /10.8	-	-	-	-
<u>Region V - Northeastern</u>														
Black River-Matheson	25	24	2.4	1.5	-	-	20	1	-	-	1.1	0.3	-	-
Chelmsford	22	19	7.6	2.1	-	-	28	3	-	-	13.0	0.1	-	-
Latchford	23	23	4.8	1.6	-	-	34	3	-	-	5.9	0.2	-	-
Nickel Centre (Coniston)	14	14	5.4	2.0	-	-	25	17	-	-	5.5	0.6	-	-
Rayside-Balfour (Azilda)	24	20	5.1	3.8	-	-	24	1	-	-	5.8	0.2	-	-
Smooth Rock Falls	15	15	4.6	2.9	-	-	33	1	-	-	4.8	0.1	-	-
<u>Region VI - Northwestern</u>														
Geraldton	20	20	4.3	2.5	14	0.1	21	2	0.01/11.0	0.02/1.1	-	-	-	-
Ignace Twp.	8	8	8.1	4.9	-	-	41	5	-	-	-	-	-	-
Pickle Lake	6/7	6	3.1	3.7	-	-	27	18	-	-	-	-	-	-
Schreiber	8	8	15.5	4.6	-	-	53	8	-	-	-	-	-	-
<u>CONTACT STABILIZATION PLANTS</u>														
<u>Region III - Central</u>														
Port McNicoll	11	12	4.3	1.1	18	1.3	26	3	0.04/0.2	0.08/12.0	3.6	0.2	-	-
<u>Region V - Northeastern</u>														
Halleybury	25	25	6.4	2.3	-	-	36	6	-	-	3.5	0.3	-	-
Iroquois Falls	23	24	4.8	2.4	-	-	25	8	-	-	3.0	0.2	-	-
Kirkland Lake	24	23	3.0	1.3	14	6	21	9	0.02/0.1	0.26/0.9	1.8	0.5	-	-
Moosonee	5	5	3.4	1.4	-	-	17	8	-	-	6.6	1.1	-	-
Whitney & Tisdale	8	24	3.9	2.7	20	4	25	4	0.06/0.2	0.45/6.0	3.7	0.8	-	-
<u>Region VI - Northwestern</u>														
Ear Falls	11	11	6.3	2.3	-	-	36	15	-	-	-	-	-	-
Longlac Twp.	18	18	6.0	1.2	-	-	23	4	-	-	-	-	-	-
Red Lake	12	12	4.9	3.1	-	-	19	10	-	-	-	-	-	-
<u>TERTIARY TREATMENT</u>														
<u>Region I - Southwestern</u>														
Stratford	95/92	72	5.4	0.7	18	3	25	4	0.12/0.1	0.94/10.8	-	-	-	-
<u>Region II - West Central</u>														
Orangeville	25/27	25	5.9	1.0	19	8	29	9	0.25/0.3	0.45/9.0	5.3	0.6	-	-
<u>Region III - Central</u>														
Dysart et al Twp. (Haliburton)	20/16	16	13.1	2.1	-	-	50	21	-	-	3.2	0.8	-	-

TREATMENT DATA

GRIT REMOVAL

Graph No. 1 displays the annual average quantity of grit removed in cubic feet per million gallons of sewage treated. The plants are grouped according to the type of grit removal facility - channels, aerated grit tanks and detritors, and are ranked in order of decreasing unit removal. The amount of grit removed is not necessarily indicative of the amount in the raw sewage - low removals may result from inefficient removal facilities or removal prior to the unit (in pumping stations and sewers); high removals may include large amounts of organic matter.

SECONDARY TREATMENT

The parameters normally used to describe the biological process in the aeration tank are summarized in Table VII and VIII. It should be noted that the food to micro-organism ratio (F/M) is listed as pounds of BOD₅ per day per pound of mixed liquor suspended solids, since volatile solids were not available for all plants. While this may not be valid for comparison between plants, particularly where phosphorus removal by chemical precipitation is being practised, it is useful for plant control.

CHLORINATION AND DISINFECTION

Chlorination data and the results of bacteriological sampling are shown in Tables IX and X. The average dosage required to maintain a 0.5 mg/1 chlorine residual after 15 minutes contact time is 5.0 mg/1 for primary treatment plants and 3.6 mg/1 for secondary treatment plants. Chlorine used for other purposes such as odor control is not included. A total of 714,000 lbs. of chlorine was used at primary treatment plants, 1,871,170 lbs. in secondary treatment plants.

Table VII

AERATION

PROJECT	AERATION		INFLUENT S.S. mg/l	MLSS CONC. mg/l	F/M lb. BOD/day per lb. MLSS	AIR SUPPLIED 10 ³ ft./lb. BOD removed	WASTE		ACTIVATED		SLUDGE	
	BOD mg/l						VOLUME 10 ³ gal/day	S.S. CONC mg/l		VOLATILE S. % of T.S.		
<u>CONVENTIONAL ACTIVATED SLUDGE PLANTS</u>												
<u>Region I - Southwestern</u>												
Chatham	136		160	3000	.17	1.0	-		4000		-	
Ingersoll - New	155		285	2900	.06	-	3.0		-		-	
- Old	77		79	2400	.19	-	5.0		-		-	
St. Marys	154		104	1700	.25	-	11.0		-		-	
Tillsonburg	60		98	2100	.03	-	16.0		4000		-	
Van Astra	45		50	4000	.02	3.3	-		-		-	
Wallaceburg	68		82	2000	.21	8.4	-		-		-	
<u>Region II - West Central</u>												
Brantford	103		120	2300	.21	-	7.0		8000		63	
Cambridge (Galt)	109		88	3000	.13	-	152.0		-		-	
Cambridge (Preston)	406		375	3200	.31	-	77.0		8700		66	
Delhi Twp. (Delhi)	106		100	3600	.07	-	-		4100		-	
Dunnville	148		7	2900	.14	-	4.0		5700		-	
Fergus	75		99	2700	.05	8.0	33.0		5900		-	
Haldimand (Caledonia)	-		68	600	.19	-	3.0		7500		-	
Haldimand (Hagersville)	102		4	-	-	-	0.1		2000		-	
Kitchener	145		79	2900	.08	-	118.0		8400		-	
Simcoe #1 Old	184		218	4100	.09	-	9.0		9900		65	
#2 New	231		318	5400	.16	3.1	21.0		13000		65	
Waterloo	146		95	2600	.20	5.3	50.0		7000		67	
Woolwich Twp. (Elmira)	181		106	3700	.09	0.8	.033		9600		60	
<u>Region III - Central</u>												
Burlington D.L.	113		208	2300	.08	2.6	-		7000		66	
Campbellford	50		99	4200	.09	-	2.0		16000		52	
Halton Hills (Georgetown)	93		161	2400	.15	-	-		9000		37	
Huntsville	127		216	1500	.57	-	22.0		4000		-	
South Peel-Lakeview Pl.#1 & 2	254		267	2700	.33	-	-		8000		-	
Pl.#3	262		297	4100	.18	-	-		-		-	
<u>Region IV - Southeastern</u>												
Belleville	82		92	1900	.38	1.6	257		5000		68	
Kingston Twp. #1 Old	161		159	2600	.19	2.1	4		5100		52	
#2 New	117		81	2900	.20	-	5		6900		61	
Sidney Twp. (Batawa)	33		42	1600	.06	-	.04		1000		-	
Trenton	144		109	3300	.16	1.8	15		9800		-	
<u>Region V - Northeastern</u>												
North Bay	145		173	2800	.32	1.2	1.6		6000		64	
Sturgeon Falls	54		48	1900	.33	.3	20		10000		62	
Valley East	123		101	1700	.19	2.3	18		5000		81	
<u>HIGH RATE ACTIVATED SLUDGE PLANTS</u>												
<u>Region I - Southwestern</u>												
Meaford	69		6	2800	.06	-	-		4000		63	
<u>Region II - West Central</u>												
Cambridge (Hespeler)	210		26	2300	.5	-	3		7100		-	
Palmerston	67		29	2300	.12	-	.28		5100		85	
<u>Region III - Central</u>												
Bradford	214		10	5000	.16	-	-		16000		-	
<u>Region IV - Southeastern</u>												
Carleton Place	19		24	2900	.13	4.6	-		-		-	
<u>Region V - Northeastern</u>												
Sudbury	121		15	6100	.2	1.9	10		13000		73	

Table VIII

AERATION

PROJECT	AERATION		MLSS CONC. mg/l	F/M lb. BOD/day per lb. MLSS	AIR SUPPLIED 10 ³ ft ³ /lb. BOD removed	WASTE		ACTIVATED		SLUDGE	
	BOD mg/l	S-S mg/l				VOLUME 10 ³ gal/day	S-S CONC. mg/l	VOLATILE S-S % of S-S			
<u>EXTENDED AERATION PLANTS</u>											
<u>Region I - Southwestern</u>											
Belle River	44	2	6700	.005	21.4	-	10000	40	-	-	-
Mildmay	-	-	-	-	-	-	-	-	-	-	-
Moore Twp. (Coruma)	107	9	4400	.02	10.2	25	25000	56	-	-	-
Moore Twp. (Courtright)	114	4	3300	.011	20.3	1.1	7000	57	-	-	-
Paisley	127	8	5400	.012	-	.19	21000	54	-	-	-
Southampton	92	3	4000	.026	-	3.4	9000	37	-	-	-
Westminster Twp.	142	9	6000	.027	-	2.0	8000	61	-	-	-
<u>Region II - West Central</u>											
Elora	136	28	2500	.12	3.8	-	-	-	-	-	-
Grand Valley	167	5	2200	.04	-	1.4	3500	-	-	-	-
Haldimand (Cayuga)	123	5	-	-	-	0.2	-	-	-	-	-
Paris	171	34	2900	-	-	-	-	-	-	-	-
Wellesley Twp. (Wellesley)	183	14	8200	.15	-	-	-	-	-	-	-
Wilmot Twp. (Baden)	171	4	7600	.01	2.9	0.8	11000	51	-	-	-
Woolwich Twp. (St. Jacobs)	231	24	5500	.06	-	-	-	-	-	-	-
<u>Region III - Central</u>											
Alliston	226	7	2700	.11	-	17.1	5000	73	-	-	-
Burlington Skyway	183	16	5600	.15	1.5	-	11000	-	-	-	-
Coldwater	55	5	1800	.002	-	-	11000	66	-	-	-
Fenelon Falls	82	5	3200	.03	-	-	-	-	-	-	-
Hastings	192	16	2000	.07	-	8.0	-	-	-	-	-
Norwood	72	7	1500	.04	-	2.4	-	-	-	-	-
South Peel (Clarkson)	195	6	8500	.05	2.0	61.1	17000	-	-	-	-
<u>Region IV - Southeastern</u>											
Bancroft	60	5	5600	.01	-	-	10000	74	-	-	-
Barry's Bay	222	38	3100	.02	-	-	-	-	-	-	-
Chalk River	163	26	5400	.06	-	-	15000	31	-	-	-
Deseronto	166	8	4600	.13	-	0.5	8000	73	-	-	-
Eganville	153	6	4400	.03	-	-	12000	56	-	-	-
Ernestown (Odessa)	51	11	-	-	-	-	-	-	-	-	-
Frankford	58	14	1800	-	-	-	-	-	-	-	-
L'Orignal	110	8	4600	.028	7.1	-	6100	74	-	-	-
Marmora	92	12	5100	.018	-	-	6500	-	-	-	-
Merrickville	101	8	4700	.009	-	-	6000	15.0	-	-	-
Pittsburgh Twp. (Cana)	119	15	3300	.021	-	-	4900	71	-	-	-
<u>Region V - Northeastern</u>											
Black River Matheson	38	4	4000	.01	27.1	-	7000	-	-	-	-
Chelmsford	130	7	6300	.08	1.6	3.6	7400	52	-	-	-
Latchford	96	6	6900	.01	5.0	.09	8000	-	-	-	-
Nickel Centre (Coniston)	107	14	3200	.06	-	14.8	8000	-	-	-	-
Rayside-Balfour (Azilda)	87	4	4600	.01	7.4	0.83	9000	47	-	-	-
Smooth Rock Falls	75	4	2700	.04	-	0.058	6000	-	-	-	-
<u>Region VI - Northwestern</u>											
Geraldton	52	6	12000	.06	-	-	-	-	-	-	-
Ignace Twp.	137	6	4000	.03	-	-	-	-	-	-	-
Pickle Lake	115	47	-	-	-	-	-	-	-	-	-
Schreiber	164	17	5900	.03	-	-	-	-	-	-	-
<u>CONTACT STABILIZATION PLANTS</u>											
<u>Region III - Central</u>											
Port McNicoll	71	5	2900/4000	.04	-	-	-	-	-	-	-
<u>Region V - Northeastern</u>											
Halleybury	119	15	3700/5500	.07	4.4	1.1	15000	-	-	-	-
Iroquois Falls Plant A	79	17	3300/4300	.05	-	17.0	11000	-	-	-	-
Iroquois Falls Plant B	79	17	3200/4300	.05	11.8	15.0	9100	-	-	-	-
Kirkland Lake	50	13	550/1800	.25	-	6.1	1000	83	-	-	-
Moosonee	59	25	3100	.04	34.4	-	6000	54	-	-	-
Whitney & Tisdale Plant A	91	10	4200/7300	.06	7.7	1.6	14000	65	-	-	-
Whitney & Tisdale Plant B	91	10	4300/8100	.04	7.0	1.6	14000	63	-	-	-
<u>Region VI - Northwestern</u>											
Ear Falls	117	7	2000/2900	.08	-	-	-	-	-	-	-
Longlac Twp.	112	7	2400	.24	-	0.09	-	-	-	-	-
Red Lake	71	13	3200/8500	.02	-	-	-	-	-	-	-
<u>TERTIARY TREATMENT</u>											
<u>Region I - Southwestern</u>											
Stratford	48	71	1800	.10	3.0	43.0	5000	58	-	-	-
<u>Region II - West Central</u>											
Orangeville	74	84	2300	.13	10.1	2.2	7400	-	-	-	-
<u>Region III - Central</u>											
Dysart et al Twp. (Haliburton)	163	17	4000	.01	-	-	40000	-	-	-	-

Table IX

CHLORINATION and DISINFECTION

PROJECT	CHLORINATION PERIOD (Year-round unless otherwise noted)	CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	NUMBER OF EFFLUENT SAMPLES WITH TOTAL COLIFORMS (per 100ml) OF:								
				less than 4	4 to 32	33 to 320	321 to 3200	3201 to 32000	32001 to 320000	320001 to 3200000	more than 3200000	
<u>PRIMARY TREATMENT PLANTS</u>												
<u>Region I - Southwestern</u>												
Owen Sound	Apr. 20 - Oct. 16	50.7	4.2	2	3	3	2	2	2	0	1	
Point Edward		6.6	4.4	-	2	1	1	1	3	1	1	
<u>Region II - West Central</u>												
Nanticoke (Port Dover)		9.6	6.4	-	-	-	-	-	-	-	-	-
<u>Region III - Central</u>												
Midland		32.4	4.9	-	-	-	-	-	-	-	-	-
<u>Region IV - Southeastern</u>												
Cornwall		302.0	6.7	-	3	-	1	1	-	-	2	2
Prescott		13.1	3.7	1	9	3	2	4	-	-	-	-
Trenton		18.6	5.5	-	-	-	-	-	-	-	-	-
<u>Region V - Northeastern</u>												
Espanola	4.1	5.0	-	-	-	-	-	-	-	-	-	
Mattagami-Timmins	49.2	3.2	2	-	2	3	-	1	-	-	-	
Parry Sound	17.7	5.3	-	-	-	-	-	-	-	-	-	
Sault Ste. Marie	171.4	5.0	-	-	-	-	-	-	-	-	-	
<u>Region VI - Northwestern</u>												
Fort Frances	38.6	4.9	-	-	-	1	4	-	-	1	-	
<u>CONVENTIONAL ACTIVATED SLUDGE PLANTS</u>												
<u>Region I - Southwestern</u>												
Chatham	May 16 - Oct. 23	41.4	5.2	-	-	-	-	-	-	-	-	
Ingersoll		8.5	2.1	17	2	3	3	2	1	1	0	
St. Marys		4.0	2.0	-	1	-	-	1	-	-	-	
Tilsonburg		7.9	2.1	6	-	-	-	-	-	-	-	
Van Astra		1.2	2.0	1	2	1	5	4	2	-	-	
Wallaceburg		15.1	4.2	-	-	-	-	-	-	-	-	
<u>Region II - West Central</u>												
Brantford	125.9	3.6	-	-	-	4	-	6	1	-		
Cambridge (Galt)	69.7	3.7	-	-	-	1	1	5	1	-		
Cambridge (Preston)	33.0	5.3	-	-	-	-	-	-	-	-		
Delhi Twp. (Delhi)	6.4	4.1	-	-	-	-	-	-	-	-		
Dunnville	20.7	5.9	-	-	-	-	-	-	-	-		
Fergus	7.9	3.3	-	-	-	-	-	-	-	-		
Haldimand (Caledonia)	7.1	6.7	-	-	-	-	-	-	-	-		
Haldimand (Hagersville)	4.1	3.1	-	-	-	-	-	-	-	-		
Kitchener	278.6	5.3	-	-	2	1	1	2	2	-		
Simcoe	32.5	3.9	-	-	-	-	-	-	-	-		
Waterloo	68.1	3.2	-	-	-	-	-	-	-	-		
Woolwich Twp. (Elmira)	3.6	2.2	-	-	-	-	-	-	-	-		
<u>Region III - Central</u>												
Burlington D.L.	May 24 - Oct. 20	5.2	2.5	-	1	1	3	3	-	-	-	
Campbellford		8.5	1.9	-	-	1	-	3	2	1	-	
Halton Hills (Georgetown)		15.3	1.7	-	1	3	2	1	2	-	-	
Huntsville		7.0	5.4	-	-	-	-	-	-	-	-	
South Peel - Lakeview		572.0	4.1	-	-	-	-	-	-	-	-	
<u>Region IV - Southeastern</u>												
Belleville	53.8	2.0	-	-	-	-	-	-	-	-		
Kingston Twp.	15.5	2.0	1	3	-	1	11	1	1	-		
Sidney Twp. (Batawa)	2.4	5.6	-	-	-	-	-	-	-	-		
Trenton	9.1	2.3	-	-	-	-	-	-	-	-		
<u>Region V - Northeastern</u>												
North Bay	Apr. 15 - Nov. 20	42.1	2.7	-	-	-	-	-	-	-	-	
Sturgeon Falls		9.4	1.7	-	-	-	-	-	-	-	-	
Valley East		12.8	3.4	-	-	-	-	-	-	-	-	
<u>HIGH RATE ACTIVATED SLUDGE PLANTS</u>												
<u>Region I - Southwestern</u>												
Meaford	May 24 - Oct. 23	2.1	3.0	-	-	2	2	3	3	1	-	
<u>Region II - West Central</u>												
Cambridge (Hespeler)	9.8	3.2	-	-	-	-	-	-	-	-		
Palmerston	0	-	-	-	-	-	-	-	-	-		
<u>Region III - Central</u>												
Bradford	May 12 - Nov. 15	5.6	4.5	-	-	-	-	-	-	-	-	
<u>Region IV - Southeastern</u>												
Carleton Place		8.8	2.0	-	-	-	-	-	-	-	-	
<u>Region V - Northeastern</u>												
Sudbury	37.9	2.4	-	-	-	-	-	-	-	-		

Table X

CHLORINATION and DISINFECTION

PROJECT	CHLORINATION PERIOD (Year-round unless otherwise noted.)	CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	NUMBER OF EFFLUENT SAMPLES WITH TOTAL COLIFORMS (per 100 ml) OF:							
				less than 4	4 to 32	33 to 320	321 to 3200	3201 to 32000	32001 to 320000	320001 to 3200000	more than 3200000
<u>EXTENDED AERATION PLANTS</u>											
<u>Region I - Southwestern</u>											
Belle River	Oct. 10 - Dec. 31	1.5	5.1	-	-	-	-	-	-	-	
Mildmay		-	-	-	-	-	-	-	-	-	
Moore Twp. (Corunna)		5.5	5.0	-	-	-	-	-	-	-	
Moore Twp. (Courtright)		0.9	7.8	-	-	-	-	-	-	-	
Paisley		0.5	4.8	-	-	-	1	2	-	-	
Southampton		3.6	4.1	8	2	1	4	5	2	-	
Westminster Twp.	May 16 - Dec. 4	2.1	2.7	-	-	-	4	9	-	-	
<u>Region II - West Central</u>											
Elora		2.7	4.4	-	-	-	-	-	-	-	
Grand Valley		1.0	4.1	-	-	-	-	-	-	-	
Haldimand (Cayuga)		2.3	4.6	-	-	-	-	-	-	-	
Paris		2.5	1.5	-	-	-	-	-	-	-	
Wellesley Twp. (Wellesley)		0.8	2.6	-	-	-	-	-	-	-	
Wilmot Twp. (Baden)		1.1	2.9	-	3	5	5	5	2	-	
Woolwich Twp. (St. Jacobs)		1.6	2.5	-	-	-	-	-	-	-	
<u>Region III - Central</u>											
Alliston		8.0	2.6	-	-	-	-	-	-	-	
Burlington Skyway		55.5	2.9	-	-	-	-	-	-	-	
Coldwater		0.9	4.0	-	-	-	1	3	1	-	
Fenelon Falls		2.4	3.6	-	12	6	15	6	1	-	
Hastings		3.3	8.4	-	1	1	4	1	1	2	
Norwood		1.4	4.4	-	3	2	2	7	2	-	
South Peel (Clarkson)		106.7	2.9	-	-	-	-	-	-	-	
<u>Region IV - Southeastern</u>											
Bancroft		3.0	5.8	1	2	4	2	4	-	1	
Barry's Bay		1.7	7.3	1	6	2	2	4	4	-	
Chalk River		0.4	1.7	-	-	-	1	4	7	5	
Deseronto		1.8	3.3	-	-	-	-	-	-	-	
Eganville		1.6	5.9	-	-	-	-	-	-	-	
Ernestown (Odessa)		0	-	-	-	-	-	-	-	-	
Frankford		3.7	-	-	-	-	-	-	-	-	
L'Orignal		1.6	4.2	-	1	-	2	1	-	-	
Marmora		2.8	9.1	-	5	4	1	3	1	1	
Merrickville		1.0	4.0	-	-	3	4	5	-	-	
Pittsburgh Twp. (Cana)		0.21	12.1	2	3	2	2	2	2	-	
<u>Region V - Northeastern</u>											
Black River - Matheson	June 1 - Oct. 31	0.61	2.3	-	-	-	-	-	-	-	
Chelmsford	May 25 - Oct. 19	2.0	2.2	-	-	-	-	-	-	-	
Latchford	May 1 - Dec. 31	0.45	3.7	-	-	-	-	-	-	-	
Nickel Centre (Coniston)	May 11 - Sept. 31	2.4	3.7	-	-	-	-	-	-	-	
Rayside-Balfour (Azilda)	May 24 - Oct. 12	1.7	3.7	-	-	-	-	-	-	-	
Smooth Rock Falls	May 9 - Oct. 15	1.4	3.5	-	-	-	-	-	-	-	
<u>Region VI - Northwestern</u>											
Geraldton	Mar. 28 - Dec. 31	3.0	1.9	-	-	-	-	-	-	-	
Ignace Twp.		3.6	6.7	-	-	-	-	-	6.7	-	
Pickle Lake	June 6 - Dec. 31	1.6	10.5	3	-	-	-	1	-	-	
Schreiber		0	0	-	-	-	-	-	-	-	
<u>CONTACT STABILIZATION PLANTS</u>											
<u>Region III - Central</u>											
Port McNicoll		1.6	2.3	-	-	-	-	-	-	-	
<u>Region V - Northeastern</u>											
Halleybury		2.8	3.4	-	-	-	-	-	-	-	
Iroquois Falls	June 1 - Oct. 26	1.8	1.6	-	-	-	-	-	-	-	
Kirkland Lake	May - Oct.	8.8	3.7	-	-	-	-	-	-	-	
Moosonee	Na OCl	N/A	-	-	-	-	-	-	-	-	
Whitney & Tisdale	May 16 - Nov. 16	4.6	3.1	-	-	-	-	-	-	-	
<u>Region VI - Northwestern</u>											
Ear Falls	Na OCl	0.9	2.9	-	-	-	-	-	-	-	
Longlac Twp.		4.1	8.2	-	-	-	-	-	-	-	
Red Lake		2.3	3.1	-	-	-	-	-	-	-	
<u>TEKTIARY TREATMENT</u>											
<u>Region I - Southwestern</u>											
Stratford		32.4	2.2	2	1	-	-	-	-	-	
<u>Region II - West Central</u>											
Orangeville		20.0	3.7	-	1	7	1	-	-	-	
<u>Region III - Central</u>											
Dysart et al Twp. (Haliburton)		0	-	-	4	-	2	3	4	1	

SLUDGE TREATMENT

Of the 103 plants 39 employed anaerobic digestion for the stabilization of sludge. 28 plants used aerobic digestion. As in the past, little information is available for aerobic digestion. Most of the extended aeration plants disposed of waste activated sludge, either from a holding tank, or directly from the clarifier.

ANAEROBIC SLUDGE DIGESTION

Data on anaerobic sludge digestion is summarized in Tables XI and XII for single and multi-stage digestion respectively. The gas produced is used largely to heat the digesters to promote rapid decomposition of the sludge.

AEROBIC DIGESTION

The available data on aerobic digestion is summarized in Table XIII. Data is sparse, with sufficient information to calculate volatile solids reduction for 8 plants.

SLUDGE DEWATERING

Tables XIV, XV and XVI contain summarized data from the vacuum filter and centrifuge installation operation.

A few plants used sludge drying beds to dewater sludge prior to ultimate disposal, though, in most such cases, the entire production could not be treated in this fashion.

SLUDGE CHARACTERISTICS

Because sludge is disposed of on farmland, where possible, a program was instituted in 1973 to provide data on the value of the various sludges as soil conditioners and on the less desirable components of the sludges such as heavy metals. As it can be seen in Tables XVII and XVIII, there is no 'average' value which could be assigned to any of the parameters. Volatile acids content for aerobically digested, waste activated and raw sludges have no relevance to the plant processes but might be taken as an indication of the stability of the sludge under anaerobic conditions (encountered during transit).

ALKALINITY OF SLUDGES

Alkalinity (mg/l Ca CO₃) results reported before October 17, 1977 were obtained by analysing the whole sludge sample as received (total alkalinity). Results obtained using this technique tended to be higher than those obtained when using the modified technique (after October 17, 1977) in which the liquid portion of the centrifuged sample was analyzed. Centrifugation removes insoluble metal salts which dissolve during titration and affect the end point.

In order to establish a correlation between data previous to October 17 and new data, 'least squares' analysis was performed on results from samples tested using both techniques.

Until a 'new history (using new data) of sludge digester alkalinities' is generated, this correlation should assist the interpretation of results during the transition period.

For example, a sample analyzed using the modified technique which had a result of 3200 mg/l would correspond to an alkalinity of approximately 5400 mg/l by the previous method.

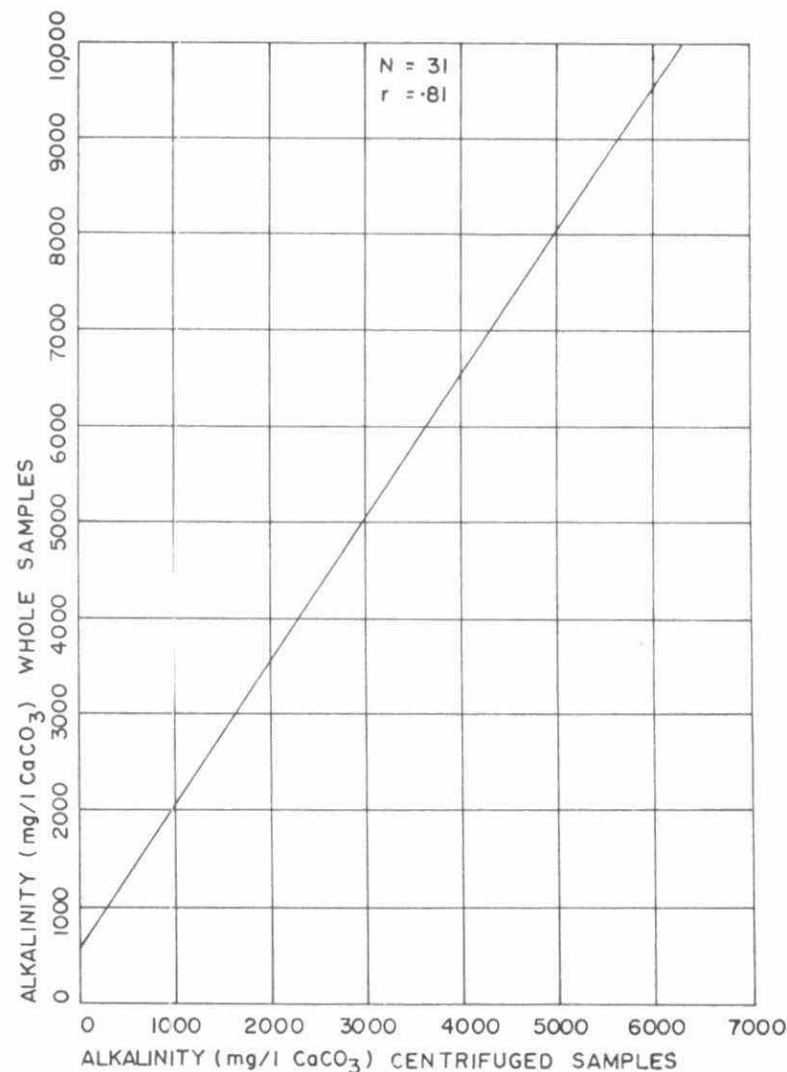


Table XI

ANAEROBIC DIGESTION-Single-Stage

PROJECT	DIGESTER VOLUME thousand gallons	RAW SLUDGE		DIGESTED SLUDGE		VOLATILE SOLIDS REDUCTION %	SLUDGE REMOVED million gallons	SUPERNATANT SUSP. SOLIDS %	GAS PROD ⁿ cubic feet per lb VS destroyed	
		VOLUME to DIGESTER million gallons	TOTAL SOLIDS %	VOLATILE SOLIDS % of TS	TOTAL SOLIDS %					VOLATILE SOLIDS % of TS
PRIMARY TREATMENT PLANTS										
<u>Region I - Southwestern</u>										
Point Edward	120	0.50	5.8	49	6.4	50	0	0.089	2.4	-
<u>Region IV - Southeastern</u>										
Prescott	150	0.56	5.9	46	9.0	35	37	0.049	0.9	22
<u>Region V - Northeastern</u>										
Espanola	116	0.86	2.9	86	4.4	56	79	0.097	0.3	-
Parry Sound	138	0.33	9.3	55	14.4	40	46	0.088	1.8	-
Timmins	80	8.48	2.4	69	5.6	50	55	1.23	0.1	-
<u>Region VI - Northwestern</u>										
Fort Frances	196	1.08	5.1	56	9.4	50	22	0.11	0.4	-
SECONDARY TREATMENT PLANTS										
<u>Region I - Southwestern</u>										
St. Marys	166	1.27	-	-	-	-	-	0.9	-	-
Van Astra	119	0.052	-	-	-	-	-	-	-	-
<u>Region II - West Central</u>										
Fergus	141	0.71	-	-	-	-	-	0.87	-	-
Haldimand-Caledonia	80	0.92	-	-	-	-	-	0.80	-	-
<u>Region III - Central</u>										
Campbellford	110	1.66	5.0	53	5.9	48	18	0.25	2.4	-
Huntsville	94	0.50	3.1	-	1.2	-	-	0.49	0.5	-
<u>Region IV - Southeastern</u>										
Sidney Twp. (Batawa)	38	0.33	3.1	-	-	-	-	-	0.7	-
<u>Region V - Northeastern</u>										
Sturgeon Falls	198	0.57	6.1	53	4.6	40	41	0.96	0.9	-

Table XII

ANAEROBIC DIGESTION-Multi-Stage

PROJECT	DIGESTER VOLUME		RAW SLUDGE			PRIMARY DIGESTER			SEC DIGESTER		OVER-ALL	SLUDGE REMOVED	SUPER-NATANT	GAS PROD ⁿ cubic feet per lb VS destroyed
	in thousand gallons		VOLUME to DIGESTER million gallons	TOTAL SOLIDS %	VOLATILE SOLIDS % of TS	TOTAL SOLIDS %	VOLATILE SOLIDS % of TS	V-S-RED ⁿ %	TOTAL SOLIDS %	VOLATILE SOLIDS % of TS	V-S-RED ⁿ %	million gallons	S-S %	
	PRIMARY	SECONDARY												
PRIMARY TREATMENT PLANTS														
<u>Region I - Southwestern</u>														
Owen Sound	196	192	3.1	5.1	51	2.1	41	33	11.7	35	48	1.5	0.2	-
<u>Region II - Central</u>														
Midland	97	95	4.6	4.9	41	-	-	-	5.2	35	23	2.6	1.5	-
<u>Region IV - Southeastern</u>														
Cornwall	515	515	6.8	3.0	63	1.8	48	46	4.1	48	48	3.0	-	19
Trenton (Till Aug. 31)	84	84	2.0	5.3	-	-	-	-	5.6	-	-	0.11	-	-
SECONDARY TREATMENT PLANTS														
<u>Region I - Southwestern</u>														
Chatham	530	510	16.4	4.0	49	3.2	41	28	5.0	39	34	3.07	1.1	15
Ingersoll	225	243	2.1	-	-	-	-	-	3.7	-	-	1.18	-	-
Tillsonburg	225	224	3.1	3.5	59	2.0	52	25	4.1	49	33	0.73	1.2	-
Wallaceburg	114	111	1.2	5.4	54	3.0	41	41	4.7	39	46	1.58	-	-
<u>Region II - West Central</u>														
Brantford	600	1200	13.7	5.5	67	4.1	59	12	4.4	56	37	13.0	.8	17
Cambridge (Galt)	245	480	8.3	4.7	67	3.6	54	42	3.0	54	42	8.8	-	-
Cambridge (Preston)	498	498	6.6	-	-	-	-	-	2.5	52	-	5.4	-	-
Kitchener	900	2500	26.0	6.5	68	3.9	56	40	3.9	53	47	24.0	1.0	-
Simcoe	270	270	4.2	3.8	41	-	-	-	2.3	69	69	2.0	0.1	-
Waterloo	776	730	15.4	4.3	66	3.3	55	38	3.2	54	40	14.1	-	13
<u>Region III - Central</u>														
Burlington D. L.	313	143	1.1	4.6	74	5.3	56	54	5.1	57	54	0.45	-	-
Halton Hills (Georgetown)	485	129	3.1	7.4	42	3.9	50	0	4.2	49	0	2.27	-	-
Huntsville	104	94	0.50	31	-	-	-	-	1.2	-	-	0.49	0.5	-
South Peel (Lakeview)	4917	1635	87.3	3.5	68	-	-	-	3.1	55	43	48.9	1.6	-
<u>Region IV - Southeastern</u>														
Belleville	495	371	23.9	4.5	69	2.7	60	33	3.5	59	36	9.1	2.8	-
Kingston Twp.	340	340	2.7	3.5	68	5.3	54	45	5.4	57	38	1.0	0.4	6
Trenon	390	390	-	-	-	-	-	-	-	-	-	-	-	-
<u>Region V - Northeastern</u>														
North Bay	911	911	7.9	5.4	64	-	-	-	3.9	52	39	5.3	1.8	-
Valley East	245	245	1.5	4.5	66	2.5	58	29	2.9	55	37	0.82	2.0	-
TERTIARY TREATMENT														
<u>Region I - Southwestern</u>														
Stratford	422	202	2.9	6.9	62	-	-	-	4.5	53	31	3.3	-	18
<u>Region II - West Central</u>														
Orangeville	215	215	2.6	4.5	63	-	-	-	4.9	42	57	1.2	-	9

Table XIII

AEROBIC DIGESTION

PROJECT	DIGESTER VOLUME thousand gallons	SLUDGE TO DIGESTER			DIGESTED SLUDGE			VOLATILE SOLIDS REDUCTION %
		VOLUME thousand gallons	TOTAL SOLIDS %	V. S. % of T.S.	VOL REMOVED thousand gallons	TOTAL SOLIDS %	V. S. % of T.S.	
<u>Region I - Southwestern</u>								
Belle River	342	-	1.0	40	65.2	1.2	32	29
Meaford	227	-	0.4	63	418	1.3	49	44
<u>Region II - West Central</u>								
Cambridge (Hespeler)	500	1252	0.7	-	1787	2.4	67	-
Dunnville	322	12100	0.6	-	681	1.7	-	-
Haldimand (Delhi)	33	939	-	-	560	-	-	-
Haldimand (Hagersville)	31	-	-	-	* 160	-	-	-
Wellesley Twp. (Wellesley)	61	-	-	-	317	-	-	-
Wilnot Twp. (Baden)	19	297	1.1	51	314	2.2	51	0
<u>Region III - Central</u>								
Bradford	350	-	1.6	-	968	2.1	56	-
Port McNicoll	43	-	-	-	141	3.4	65	-
South Peel - Clarkson	-	22300	1.7	-	7847	4.0	57	-
<u>Region IV - Southeastern</u>								
Bancroft	195	-	1.0	74	395	2.0	59	49
Carleton Place	160	-	-	-	-	-	-	-
Deseronto	67	186	0.8	73	177	1.6	68	21
Eganville	56	-	1.2	56	76	1.7	56	0
Frankford	75	-	-	-	-	-	-	-
Pittsburg (Cana)	6	-	0.5	47	-	-	-	-
<u>Region V - Northeastern</u>								
Black River - Matheson	Holding Tank	-	0.7	-	14.1	-	-	-
Chelmsford	260	1307	0.7	52	558	1.8	53	0
Halleybury	93	394	1.5	-	160	1.7	-	-
Iroquois Falls	57	11586	1.0	-	2536	0.8	66	-
Kirkland Lake	227	2243	0.1	83	1492	1.4	77	31
Moosomee	28	-	0.6	54	-	0.6	53	4
Sudbury	595	3753	1.3	73	4546	1.3	72	5
Whitney and Tisdale	57	1190	1.4	65	666	2.3	55	34
<u>Region VI - Northwestern</u>								
Ear Falls	24	-	-	-	44.3	2.8	55	-
Longlac Twp.	47	32.4	-	-	34.0	-	-	-
Red Lake	48	-	-	-	18.0	2.3	-	-

* Raw Sludge

Table XIV

VACUUM FILTRATION

PROJECT	TOTAL FILTER HOURS	SLUDGE TO FILTER(S)			CONDITIONING		CHEMICALS				FILTER YIELD lb per ft ² per hour	FILTER CAKE	
		VOLUME 10 ⁶ gallons	T. S. %	DRY SOLIDS 10 ⁶ pounds	LIME USED 10 ³ pounds	CaO DOSAGE %	FERRIC CHLORIDE USED 10 ³ pounds	DOSAGE %	POLYMER USED pounds	DOSAGE ppm		T. S. %	AMT HAULED cubic yards
Region V - Northeastern Sault Ste. Marie Vacuum Filters (2)	3364	11.18	5.1	5.60	0	0	0	0	0	0	8.4	22.2	8173

Table XV

CENTRIFUGATION

PROJECT	TOTAL HOURS	SLUDGE TO CENTRIFUGE(S)			POLYMERS USED				CENTRATE S.S. mg/l	SLUDGE CAKE		
		VOLUME 10 ⁶ gallons	T. S. %	DRY SOLIDS 10 ⁶ pounds	H ₂ O ₂	444	725	728		788	T. S. %	AMT HAULED cubic yards
Region I - Southwestern Chatham	2102	5.37	4.9	2.71	0	0	1108	6933	0	1358	22	27917
Region V - Northeastern Sudbury	3065	12.45	1.3	1.62	0	0	0	6502	6622	3777	10.8	10944

Table XVI

VACUUM FILTRATION WITH THERMAL CONDITIONING

PROJECT	VACUUM FILTER WITH THERMAL CONDITIONING UNIT									
	BLENDED SLUDGE			DECANTERSUPERNATANT		SLUDGE TO FILTER		VACUUM FILTER CAKE		
	VOLUME IN 10 ⁶ gallons	T. S. %	V. S. %	B.O.D. mg/l	S. S. mg/l	BOD mg/l	S. S. mg/l	AVG. YIELD 10 ³ ft ² /hr	T. S. %	HAULED cubic yards
Region III - Central South Peel - Lakeview	48.84	2.5	65	4300	2800	7300	7500	2.8	41	-

Table XVII

SLUDGE CHARACTERISTICS

NOTE: Units are milligrams per litre as sampled except where noted.

PROJECT	SOLIDS		pH units	VOLATILE ACIDS as ACETIC ACID	NITROGEN as N		P	Na mg/g dry	K mg/g dry	Cl ⁻	ALKALINITY as CaCO ₃	Cr	Al
	TOTAL %	VOLATILE % of TS			AMMONIA	KJELDAHL							
ANAEROBICALLY DIGESTED SLUDGE													
PRIMARY TREATMENT PLANTS													
Region I - Southwestern													
Owen Sound	13.7	34	7.3	76	630	2600	3100	91	47	110	14000	58	1800
Point Edward	6.5	47	7.5	150	400	1500	2600	84	50	1400	4100	14	240
Region III - Central													
Midland	3.9	36	7.0	450	290	1000	1200	140	22	130	2900	160	370
Region IV - Southeastern													
Cornwall	-	-	-	-	-	-	-	-	-	-	-	5	1500
Prescott	11.1	38	7.1	110	650	2300	2500	120	40	150	9800	38	1100
Region V - Northeastern													
Espanola	3.2	56	6.8	50	140	983	190	40	20	30	1500	2	180
Parry Sound	7.7	74	-	-	780	3500	2000	-	-	-	-	-	-
Timmins	6.0	48	-	-	190	1600	390	-	-	-	-	-	-
SECONDARY TREATMENT PLANTS													
Region I - Southwestern													
Chatham	4.8	38	7.2	120	540	1900	2200	100	80	80	6200	41	2500
Ingersoll	3.5	54	6.9	360	270	1300	2000	110	40	120	2600	32	160
St. Marys	2.1	59	7.8	50	1100	1900	740	125	90	130	7100	3	90
Wallaceburg	5.1	35	7.5	280	780	1600	1400	70	50	130	4100	24	680
Region II - West Central													
Brantford	4.6	39	7.5	70	900	2300	1100	140	120	250	4800	27	400
Cambridge (Galt)	2.4	54	7.7	50	720	1800	650	420	70	170	5900	28	110
Cambridge (Preston)	2.9	44	7.7	65	900	2300	580	200	160	220	4700	4	120
Fergus	-	-	-	-	-	-	-	-	-	-	-	1700	-
Kitchener	3.9	52	7.6	50	700	1800	750	240	75	330	3800	380	430
Waterloo	2.9	51	7.8	108	900	2000	580	280	160	300	6400	24	700
Region III - Central													
Burlington D. L.	-	-	-	-	600	2800	-	-	-	-	-	22	-
Campbellford	6.0	48	-	-	330	2900	1400	-	-	750	-	-	-
Halton Hills (Georgetown)	3.6	47	7.4	50	1100	2300	740	190	110	6700	200	8	2200
South Peel - Lakeview	2.5	56	-	-	730	1900	890	-	-	-	-	25	-
Region V - Northeastern													
North Bay	3.8	53	-	-	900	2200	560	-	-	-	-	17	-
Sturgeon Falls	3.0	40	-	-	650	1600	900	-	-	-	-	3	260
Valley East	2.0	65	7.3	290	750	2000	400	-	-	-	7600	2	210
TERTIARY TREATMENT													
Region II - West Central													
Orangeville	6.1	42	7.4	50	700	2200	1800	120	67	230	5200	4	1600
Region III - Central													
Dysart et al (Haliburton)	-	-	-	-	95	-	-	-	-	-	-	4	-
AEROBICALLY DIGESTED SLUDGE													
Region I - Southwestern													
Meaford	4.6	35	6.7	72	74	1600	720	44	28	58	4300	3	460
Region II - West Central													
Cambridge (Hespeler)	1.8	58	7.2	160	120	760	600	230	48	316	1900	27	99
Dunnville	2.4	46	6.9	50	25	700	-	110	32	-	-	4	510
Wellesley (Wellesley)	-	-	-	-	-	-	-	-	-	-	-	2	910
Region III - Central													
Bradford	3.6	-	-	-	40	1400	-	-	-	-	-	3	-
Region IV - Southeastern													
Deseronto	-	-	-	-	-	-	-	-	-	-	-	1	96
Eganville	1.6	67	6.9	50	60	1000	400	53	51	110	650	1	130
Region V - Northeastern													
Chelmsford	1.6	53	6.3	96	33	650	370	51	59	150	430	.9	120
Halleybury	1.7	45	-	50	-	-	-	-	-	-	-	.8	230
Iroquois Falls	7.0	70	6.7	50	23	390	180	31	38	32	360	13	110
Kirkland Lake	1.2	59	6.4	160	37	690	280	38	55	40	454	.6	69
Sudbury	1.3	71	6.6	-	54	950	380	90	53	140	460	1.3	79
Whitney & Tisdale	2.2	40	-	-	18	900	-	-	-	-	-	-	-
HOLDING TANK (Waste Act. Sludge)													
Region I - Southwestern													
Southampton	2.1	62	7.1	23	130	1100	400	60	31	72	820	1.4	204
Westminster	2.4	58	7.0	50	130	1200	820	70	43	57	1200	3.7	1600
Region II - West Central													
Woolwich Twp. St. Jacobs	-	-	-	-	-	-	-	-	-	-	22	170	-
Region III - Central													
Alliston	4.3	-	-	-	380	2700	-	-	-	-	2	-	-
Burlington Skyway	-	-	-	-	190	1100	-	-	-	-	24	-	-
Coldwater	2.0	70	-	-	300	1700	-	-	-	-	1	-	-
Fenelon Falls	-	-	-	-	-	-	-	-	-	-	3	-	-
Port McNicoll	-	-	-	-	190	2100	-	-	-	-	5	-	-
South Peel (Clarkson)	3.4	53	-	-	-	2300	1000	-	-	-	16	-	-
Region V - Northeastern													
Rayside (Azilda)	-	-	-	-	-	-	-	-	-	-	1	73	-
Latchford	2.6	50	-	-	31	900	800	-	-	-	3	1300	-
Smooth Rock Falls	9.3	-	-	-	29	180	-	-	-	-	1	120	-

Table XVIII

SLUDGE CHARACTERISTICS

NOTE: Units are parts per million as sampled except where noted.

PROJECT	Zn	Cu	Ni	Pb	Cd	Mn	Fe	Ca	Mg	Co	Hg (ppb)	Mo	Ti	ETHER EXTRACTIBLES
<u>ANAEROBICALLY DIGESTED SLUDGE</u>														
<u>PRIMARY TREATMENT PLANTS</u>														
<u>Region I - Southwestern</u>														
Owen Sound	190	80	2.1	90	.60	40	5000	4300	1300	.20	300	1.6	220	3100
Point Edward	130	35	1.4	49	.56	25	5700	2200	290	.03	100	1.2	22	3200
<u>Region III - Central</u>														
Midland	180	32	297.0	30	.54	16	2800	1700	140	1.07	220	.16	-	720
<u>Region IV - Southeastern</u>														
Cornwall	76	16	1.7	18	.28	23	900	2800	360	.10	190	-	-	-
Prescott	300	170	4.2	137	1.1	72	11000	5900	1700	.67	200	1.0	-	2500
<u>Region V - Northeastern</u>														
Espanola	23	41	4.9	9	.20	4	400	350	91	2.30	-	-	-	-
Parry Sound	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Timmins	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<u>SECONDARY TREATMENT PLANTS</u>														
<u>Region I - Southwestern</u>														
Chatham	80	15	5.7	20	.38	26	3400	2100	450	.82	39	.43	-	1200
Ingersoll	170	34	5.6	9	.17	73	3800	1500	110	.25	47	3.4	-	1800
St. Marys	86	54	0.5	16	.21	4	1100	1400	180	.09	9	.35	-	410
Wallaceburg	100	68	16	12	.37	75	3800	3000	550	.07	125	.65	-	840
<u>Region II - West Central</u>														
Brantford	74	34	4.4	36	.67	9	2100	1400	210	.79	140	.75	-	1700
Cambridge (Galt)	40	21	2.2	9	1.7	5	1300	1200	240	.10	-	-	-	1200
Cambridge (Preston)	31	8	0.9	8	.44	5	510	750	150	.13	-	-	-	420
Fergus	2500	2900	20	46	1.1	54	-	-	-	-	-	-	-	-
Kitchener	200	31	16	12	.30	15	2000	2000	220	.30	73	1.4	-	130
Waterloo	40	35	3.8	8	.41	7	1200	1400	260	1.1	63	.23	-	530
<u>Region III - Central</u>														
Burlington D. L.	110	55	1.2	40	.9	-	-	-	-	.15	920	-	-	-
Campbellford	77	38	1.4	39	.55	38	1100	-	-	.80	72	.73	-	-
Halton Hills (Georgetown)	46	23	2.1	21	9.4	6	520	1200	200	1.52	70	.26	-	1300
South Peel - Lakeview	63	36	7.2	32	1.1	22	780	-	170	.74	97	1.19	-	-
<u>Region V - Northeastern</u>														
North Bay	42	81	1.7	18	.39	-	2000	-	-	.27	160	.30	-	-
Sturgeon Falls	12	32	3.6	8	.14	12	2500	-	120	.27	-	-	-	-
Valley East	17	33	6.7	4	.25	5	330	610	150	.32	94	.20	-	-
<u>TERTIARY TREATMENT</u>														
<u>Region II - West Central</u>														
Orangeville	42	26	1.0	17	.31	24	1500	3000	510	.25	-	-	-	1100
<u>Region III - Central</u>														
Dysart et al (Haliburton)	66	42	.52	9	.40	-	-	-	-	.17	127	.32	-	-
<u>AEROBICALLY DIGESTED SLUDGE</u>														
<u>Region I - Southwestern</u>														
Meaford	57	85	2.6	14	.22	68	440	3000	800	.25	130	.02	-	550
<u>Region II - West Central</u>														
Cambridge (Hespeler)	150	12	17	4	2.5	4	740	720	140	.15	-	-	-	1200
Dunnville	40	-	1	10	.17	19	970	3100	220	.21	120	.23	-	73
Wellesley (Wellesley)	3	.8	.06	.56	.01	0.7	66	110	28	.04	4	.06	-	71
<u>Region III - Central</u>														
Bradford	27	13	.47	5	.12	-	-	-	-	.16	35	.21	-	-
<u>Region IV - Southeastern</u>														
Deseronto	14	12	.45	3	.07	12	130	600	82	.20	34	.20	-	-
Eganville	11	7	.34	4	.09	15	200	500	140	.12	74	.15	12	115
<u>Region V - Northeastern</u>														
Chelmsford	7	11	5.7	.10	.10	12	290	370	121	.28	33	.13	20	-
Halleybury	10	13	.45	3.6	.11	1	260	-	92	.12	370	-	-	-
Iroquois Falls	4	4	0.7	3.0	.05	2	97	180	56	.12	-	-	-	180
Kirkland Lake	6	13	.29	1.9	.20	5	120	160	63	.10	47	.10	8	290
Sudbury	11	19	6.4	2.8	.22	5	270	230	123	.42	57	.10	20	-
Whitney & Tisdale	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<u>HOLDING TANK (Waste Act. Sludge)</u>														
<u>Region I - Southwestern</u>														
Southampton	19	19	.55	19	.16	45	440	770	170	.38	73	.20	-	150
Westminster	14	13	10	4.6	.08	4	160	540	110	.16	20	.06	-	380
<u>Region II - West Central</u>														
Woolwich Twp. St. Jacobs	6	11	.13	.67	.04	2	49	270	190	.07	7	.09	-	87
<u>Region III - Central</u>														
Alliston	10	13	.7	7.0	.12	-	-	-	-	.20	121	.23	-	-
Burlington Skyway	300	40	1.3	19	7.2	-	-	-	-	.15	120	.25	-	-
Coldwater	13	11	.6	3	.10	-	-	-	-	.15	111	.13	-	-
Fenelon Falls	41	17	.32	8	.15	-	-	-	-	.10	-	.10	-	-
Port McNicoll	97	24	.69	26	.27	-	-	-	-	.34	32	.28	-	-
South Peel (Clarkson)	110	23	5	26	22.0	-	-	-	-	1.40	.02	2.8	-	-
<u>Region V - Northeastern</u>														
Rayside-Balfour (Azilda)	5	7	0.8	1	.06	0.7	120	640	17	.14	21	.01	-	-
Latchford	25	10	0.9	15	.18	75	460	430	120	.34	8	-	-	-
Smooth Rock Falls	9	8	.20	3	-	9	80	-	270	-	10	-	-	-

PROJECT STAFF

During 1977 the 103 water pollution control plants employed a total of 402.21 permanent staff. The fractional complements arise from operation of water projects in the same municipality (see Water Supply 1977 Operating Summary) or employment of part-time staff. Joint operation of water and sewage projects was practised at a number of locations.

Table XIX

PROJECT STAFF (Cont'd)

PROJECT	SUPERINTENDENT	ASST. SUPT.	CHIEF OPERATOR	SENIOR OPERATOR	OPERATOR	FOREMAN	MECHANIC	ELECTRICIAN	CONTROLS TECH.	LABORATORY TECH.	GROUNDSMAN/JANITOR	LABOURER	CASUAL	PART-TIME	OTHER	TOTAL
PRIMARY TREATMENT																
<u>Region I - Southwestern</u>																
Owen Sound			1		3							.25				4.25
Point Edward			1		2											3
<u>Region II - West Central</u>																
Nanticoke (Port Dover)			.87		.87								.33			1.93
<u>Region III - Central</u>																
Midland			1		1											2
<u>Region IV - Southeastern</u>																
Cornwall	.85		1		4.5		2									8.35
Prescott			1		1											2
<u>Region V - Northeastern</u>																
Espanola	.5				.5											1.0
Mattagami-Timmins	1				2		1									4
Parry Sound	1				1								.6			2.60
Sault Ste. Marie	.8	1			6		1	1					1.0			10.8
<u>Region VI - Northwestern</u>																
Fort Frances	1				3											4
CONVENTIONAL ACTIVATED SLUDGE																
<u>Region I - Southwestern</u>																
Chatham	1			1	7	1	1	1			1					12
Ingersoll			1		2								.25			3.25
St. Marys			1		1								.25			2.25
Tillsonburg			1		2								.25			3.25
Van Astra			.5		.5								.25			1.25
Wallaceburg			1		3		1									5
<u>Region II - West Central</u>																
Brantford	1	1			11	1	2		1	1						18
Cambridge (Galt)	1				4		1		1				.50			7.50
Cambridge (Preston)	.5				3		1		.5				.33			5.33
Delhi Twp. (Delhi)			1		1											2.0
Dunville			1		1		1									3
Fergus			.6		.7								.33			1.63
Haldimand (Caledonia)			1		1											2.0
Haldimand (Hagersville)			.67		.67								.17			1.59
Kitchener	1	1			9	1	2	1	1	1	2	.67				19.67
Simcoe	1				1.5		2									4.5
Waterloo	1				4		1	1	1							8.0
Woodwich Twp. (Elmira)			1		1								.4			2.4
<u>Region III - Central</u>																
Burlington D. L.	.23			1	1.3		.5									2.5
Campbellford			.30		2											2.3
Halton Hills (Georgetown)			1		3											4.0
Huntsville			1		2											3.0
South Peel - Lakeview	1	2	10	23	*1	11	2	2	2	2	6	1	2	2		65
<u>Region IV - Southeastern</u>																
Belleville	1	1			4	1	0	0		1						8
Kingston Twp.	.5				2.5		1		.5							4.5
Sidney Twp. (Batawa)			.25		.5											.75
Trenton			1		1											2
<u>Region V - Northeastern</u>																
North Bay	1	1			5		2		1							10
Sturgeon Falls	.9				1								.5			2.4
Valley East	.5				2		1	1								4.5
EXTENDED AERATION																
<u>Region I - Southwestern</u>																
Belle River			1		1											2.0
Moore Twp. (Corunna)			1		1											1
Moore Twp. (Courtright)			1										.25			1.25
Paisley			1													1.5
Southampton			.5		1											1.5
Westminster			1										.5			1.5
<u>Region II - West Central</u>																
Elora			.4		.3								.08			.78
Grand Valley			.5		.75		.25						.10			1.60
Haldimand (Cayuga)			.33		.33								.17			.83
Paris			1													1.0

PROJECT	SUPERINTENDENT	ASST. SUPT.	CHIEF OPERATOR	SENIOR OPERATOR	OPERATOR	FOREMAN	MECHANIC	ELECTRICIAN	CONTROLS TECH.	LABORATORY TECH.	GROUNDSMAN/JANITOR	LABOURER	CASUAL	PART-TIME	OTHER	TOTAL
<u>Region II - West Central (Cont.)</u>																
Wellesley Twp.			.33		.33								.2			.86
Wilmot (Baden)			.33		.33								.5			1.16
Woolwich Twp. (St. Jacobs)													.3			.3
<u>Region III - Central</u>																
Alliston			.88		1.75											2.63
Burlington Skyway	1				7		1.5									9.5
Fenelon Falls			.5		1											1.5
Hastings			.4		1											1.4
Norwood			.2												1	1.2
South Peel (Clarkson)			1		4						1					6
<u>Region IV - Southeastern</u>																
Bancroft			1		1											2
Barry's Bay			.6		.6											1.2
Chalk River			.75		.75											1.5
Deseronto	.5				.5											1.0
Eganville			.66		.66											1.33
Ernestown (Odessa)			.5		.5											1
Frankford			.5		1											1.5
L'Orignal			.6		.5											1.1
Marmora			.8		.8											1.6
Merrickville			.75		.75											1.5
Pittsburgh Twp. (Cana)					.5											.5
<u>Region V - Northeastern</u>																
Black River - Matheson	.75												.25			1.0
Chelmsford	.5			.5	1											2.0
Latchford	.05				.5		.02									.82
Nickel Centre (Coniston)					1											1.5
Rayside Balfour (Azilda)	.5			.5	1											2.19
Smooth Rock Falls	1															1.2
<u>Region VI - Northwestern</u>																
Geraldton			.5		.5											1.5
Ignace Twp.			.5		.5											1
Pickle Lake					.5											.5
Schreiber			1		.5											1.5
CONTACT STABILIZATION																
<u>Region III - Central</u>																
Port McNicoll														1		1
<u>Region V - Northeastern</u>																
Haileybury	.26				.58		.29						.14			1.27
Iroquois Falls	1				1											2
Kirkland Lake	1				2								.5			3.5
Moosonee	.25				.5								.10			.85
Whitney & Tisdale	1				1								.5			2.5
<u>Region VI - Northwestern</u>																
Ear Falls			.5													1.0
Longlac Twp.			.5		1											1
Red Lake			.5		.5											1.0
HIGH-RATE																
<u>Region I - Southwestern</u>																
Meaford			1		1								.25			2.25
<u>Region II - West Central</u>																
Cambridge (Hespeler)	.5			1	1					.5			.25			3.25
Palmerston																0
<u>Region III - Central</u>																
Bradford			1		1											2
<u>Region IV - Southeastern</u>																
Carleton Place			.5		1.0											1.5
<u>Region V - Northeastern</u>																
Sudbury	1	1		1	7		2	1		1			.3			14.3
TERTIARY																
<u>Region I - Southwestern</u>																
Stratford	1			1	4		1						.25			7.25
<u>Region II - West Central</u>																
Orangeville			.5		1.25		.75						.20			2.70

Table XX

PROJECT STAFF

PROJECT	SUPERINTENDENT	ASS'T SUP'T.	CHIEF OPERATOR	SENIOR OPERATOR	OPERATOR	FOREMAN	MECHANIC	ELECTRICIAN	CONTROLS TECH.	LABORATORY TECH.	GROUNDSMAN/JANITOR	LABOURER	CASUAL	PART-TIME	OTHER	TOTAL
<u>TERTIARY (Cont.)</u>																
<u>Region III - Central</u>																
Dysart et al Twp. (Haliburton)													1		1	
<u>WASTE STABILIZATION PONDS</u>																
<u>Region I - Southwestern</u>																
Aylmer														.25		.25
Belmont														.25		.25
Chesley													.25			.25
Comber													.25			.25
Cottam													.25			.25
Dundalk													.25			.25
Dutton													.25			.25
E. Zorra - Tavistock Twp.													.25			.25
Enniskillen Twp. - Oil City													.25			.25
Essex N. E.													.17			.17
Essex S.W.													.17			.17
Exeter													.25			.25
Forest													.25			.25
Glencoe													.25			.25
Harrow													.25			.25
Hensall													.25			.25
Lucan													.25			.25
Markdale													.25			.25
Milverton													.25			.25
Mitchell													.25			.25
Mitchell's Bay													.2			.2
Moore Twp. Brigden													.25			.25
Norwich													.25			.25
Oil Springs													.25			.25
Petrolia													.25			.25
Port Stanley													.25			.25
Ridgetown													.25			.25
Rodney													.25			.25
Seaforth													.25			.25
Sombra Twp. (Pt. Lambton)													.25			.25
Sombra Twp. (Sombra)													.25			.25
Watford													.25			.25
West Lorne													.25			.25
Warton													.25			.25
Wingham													.25			.25
Zurich													.25			.25
<u>Region II - West Central</u>																
Arthur													.42			.42
Harriston															0	
Nanticoke - (Jarvis)			.13	.13												.26
Norfolk (Pt. Rowan)													.35			.35
Shelburne															0	
Wilmot Twp. (New Hamburg)																0
<u>Region III - Central</u>																
Beeton			.13	.25												.38
Bracebridge													.25			.25
Brighton													.5			.5
Elmvale													1			1
Havelock			.1										1			1,1
Lakefield													1			1
Lindsay													.25			.25
Omeme													2			2
<u>Region IV - Southeastern</u>																
Alexandria	.05			.1												.15
Alfred		.1		.3												.4
Chesterville		.2		.2												.4
Ernestown - (Amherstview)											1					1
Goulbourn Twp. (Richmond)		.25		.5												.75
Lancaster	.05			.2												.25
Leeds & Lansdowne		.25										.25				.50
Madoc		.2		.2												.4
Plantagenet		.1		.4												.5
Rockland		.6		.75												1.35

PROJECT	SUPERINTENDENT	ASS'T SUP'T.	CHIEF OPERATOR	SENIOR OPERATOR	OPERATOR	FOREMAN	MECHANIC	ELECTRICIAN	CONTROLS TECH.	LABORATORY TECH.	GROUNDSMAN/JANITOR	LABOURER	CASUAL	PART-TIME	OTHER	TOTAL
<u>Region IV - Southeastern (Cont.)</u>																
St. Isidore de Prescott			.25													.50
Stirling																.5
Tweed Village																.5
Vankleek Hill																.25
Westport			.25													.40
Winchester			.4	.4								.15				.8
<u>Region V - Northeastern</u>																
Black R. Matheson-Ramora			.1													.1
Black R. Matheson-Val Gagne			.05													.05
Bruce Mines			.1		.5											.6
Bark's Falls																.35
Caldwell Twp. (Verner)			.05		.25								1.25			1.55
Englehart														.25		.25
Fauquier Twp. - (Moonbean)			.1												.1	.2
Halleybury - (N. Cobalt)			.045		.1	.05									.025	.22
Hearst															.4	.4
Little Current																.30
Manitowaning																.30
Mattawa																.30
Michipicoten - Wawa																Operated by Municipality
New Liskeard																.4
N. Hilmsworth - Callander																.4
Powassan																.15
Ratter & Dunnet (Warren)																.15
Shackleton - Machin Twp. (Fauquier)			.3													.07
Webbwood																.25
<u>Region VI - Northwestern</u>																
Emo																0
<u>AERATED LAGOONS</u>																
<u>Region I - Southwestern</u>																
Durham																.25
Kincardine																1
Listowel			1													1
Thornbury																1
<u>Region II - West Central</u>																
Nanticoke (Waterford)					.5											.5
<u>Region III - Central</u>																
Stayner																.5
<u>Region IV - Southeastern</u>																
Almonte			.25	.5												.75
Gananoque																

OPERATING COSTS

The operating costs incurred by the 103 water pollution control plants operated by the Ministry of the Environment (including the South Peel System as a single project and the two plants in Thunder Bay as a single project) are summarized in Tables XXI and XXII. The cost of head office supervision, including travel, accounting, purchasing and inspection, is not charged against the project. A brief explanation of the budget categories used follows:

SALARIES & WAGES

Regular & Probationary
Unclassified

includes overtime, call-in, standby, etc.
includes casual, part-time

EMPLOYEE BENEFITS

includes employers' share Canada Pension Plan
Superannuation, Unemployment Insurance,
Workman's Compensation, etc.

TRANSPORTATION & COMMUNICATION

includes travel, telephone, telemetering,
accommodation, etc.

SERVICES

includes easements, insurance, sludge haulage,
maintenance and repair, leases.

SUPPLIES & EQUIPMENT

includes new vehicles, chemicals, power, fuel,
water, treatment chemicals, small tools, petty
cash.

ACQUISITION/CONSTRUCTION
OF PHYSICAL ASSETS

includes new sewer or water connections.

TRANSFER PAYMENTS

includes grants in lieu of taxes
(provincial).

OTHER TRANSACTIONS

includes municipal taxes.

Table XXIII contains summaries of unit operating costs and of sludge disposal costs.

The operating costs given do not include any portions paid by the municipalities.

Note: Brackets indicate credit

Table XXI

OPERATING EXPENDITURES

PROJECT	GRAND TOTAL	Regular Staff	Casual (Unclassified) Staff	TOTAL SALARIES AND WAGES	TOTAL EMPLOYEE BENEFITS	TOTAL TRANSPORTATION AND COMMUNICATIONS	Insurance	Sludge Haulage	Repairs and Maintenance	Other Services
PRIMARY TREATMENT PLANTS										
<u>Region I - Southwestern</u>										
Owen Sound	176144	66933	7417	74350	8445	1800	1235	13570	1901	658
Point Edward	54322	21581	6163	27744	4814	728	757	3494	206	(1443)
<u>Region II - West Central</u>										
Nanticoke (Port Dover)	67546	26037	2845	28862	4143	-58	1198	-	820	842
<u>Region III - Central</u>										
Midland	153869	40810	5186	45996	3959	1414	860	26033	9183	370
<u>Region IV - Southeastern</u>										
Cornwall	370861	131438	1005	132443	17402	4663	4317	29478	6734	7141
Prescott	79513	33394	2033	35427	4031	1722	1644	755	2526	1962
<u>Region V - Northeastern</u>										
Espanola	42861	22901	1654	24555	35777	849	594	919	207	52
Mattagami Timmins	149474	52293	18505	70798	7335	3734	1138	15942	6243	1710
Parry Sound	115914	47305	154	47459	5548	1937	783	36	7044	377
Sault Ste. Marie	360875	167719	-	167719	21127	4559	3681	17973	3769	1879
<u>Region VI - Northwestern</u>										
Fort Frances	108597	48710	6837	55547	6328	1781	1403	3034	2269	208
CONVENTIONAL ACTIVATED SLUDGE PLANTS										
<u>Region I - Southwestern</u>										
Chatham	447057	182491	8350	190841	23138	7739	3231	35345	3411	3459
Ingersoll	149479	52116	9401	61617	13964	8638	2952	7653	4968	736
St. Marys	78664	33630	3341	36971	4219	1027	2419	5833	1553	665
Tillsonburg	116697	48331	7977	56308	6066	1919	1929	6200	3914	373
Van Astra	39739	21824	1468	23292	4074	2244	1213	175	305	89
Wallaceburg	216880	71871	-	71871	9848	5085	3519	17341	36603	1257
<u>Region II - West Central</u>										
Brantford	573841	249350	-	249350	33617	2918	3834	(120)	14193	18919
Cambridge (Galt)	314763	104711	10163	114874	20738	2193	4681	58879	3268	1056
Cambridge (Preston)	203572	81627	2165	83792	11635	2395	2982	33551	4336	1536
Delhi Twp. (Delhi)	59910	24968	-	24968	4008	525	934	5865	735	427
Dunnville	117062	49348	341	49689	5935	1196	1010	6996	7870	1525
Fergus	59481	23756	3508	27264	3900	1221	507	5051	2284	1041
Haldimand (Caledonia)	75616	30038	1941	31979	3497	2606	761	10003	1210	1416
Haldimand (Hagersville)	44603	18381	1256	19637	3888	(561)	458	2436	1805	431
Kitchener	836386	284117	13324	297441	39708	5025	10224	202127	4587	2300
Simcoe	175343	67168	(1038)	66130	10111	(182)	2064	27131	8527	1241
Waterloo	382745	107607	786	108393	15534	10519	2730	82080	5053	1390
Woolwich Twp. (Elmira)	65635	30189	2425	32614	3437	6746	721	4571	1165	287
<u>Region III - Central</u>										
Burlington D. L.	81293	37275	2400	39675	3975	481	1319	3142	7740	155
Campbellford	85545	45087	(435)	44652	5996	2132	1615	(328)	3181	5151
Halton Hills (Georgetown)	166407	68039	-	68039	7998	3342	2060	20710	2070	820
Huntsville	116687	45123	2645	47768	5309	6029	1932	4692	1970	1816
South Peel Sewage System	4001712	1059446	40057	1099503	130910	21110	70756	705257	109532	80617
<u>Region IV - Southeastern</u>										
Belleville	400354	145175	-	145175	19474	1092	5904	51322	14745	1822
Kingston Twp.	167599	59978	1257	61235	18174	2258	1884	14604	9652	1391
Sidney Twp. (Batawa)	25110	15517	-	15517	-	1040	192	-	69	212
Trenton	87297	38285	-	38285	4958	1124	4551	-	1181	589
<u>Region V - Northeastern</u>										
North Bay	398466	158471	4262	162733	19215	7575	9325	54219	7164	4628
Sturgeon Falls	101191	31007	6181	37188	4167	1000	2208	9476	2462	1797
Valley East	156464	69491	-	69491	9954	1741	4684	7423	5905	427
HIGH RATE ACTIVATED SLUDGE PLANTS										
<u>Region I - Southwestern</u>										
Meaford	76181	34400	2364	36764	4101	3183	1707	5117	829	92
<u>Region II - West Central</u>										
Cambridge (Hespeler)	103795	41834	2785	44619	4173	1823	1439	12873	703	967
Palmerston	459	16	-	16	-	22	279	-	-	142
<u>Region III - Central</u>										
Bradford	103232	35660	2329	37989	4111	2843	1224	7614	2452	2193
<u>Region IV - Southeastern</u>										
Carleton Place	80396	31999	(1903)	30096	5762	868	1126	946	1740	669
<u>Region V - Northeastern</u>										
Sudbury	692515	222689	8966	231655	28381	4297	7271	55429	12308	2096

Table XXI (Cont'd)

PROJECT	TOTAL SERVICES	Machinery and Equipment	Chemicals	Utilities	Other Supplies and Equipment	TOTAL SUPPLIES AND EQUIPMENT	TOTAL ACQUISITION/ CONSTRUCTION/ OF PHYSICAL ASSETS	TOTAL TRANSFER PAYMENTS	OTHER TRANSACTIONS	INTER-MINISTRY EXP. REFUNDS
PRIMARY TREATMENT PLANTS										
<u>Region I - Southwestern</u>										
Owen Sound	17372	2035	39859	28783	3500	74177	-	-	-	-
Point Edward	3014	650	6418	7012	2705	16815	-	-	1207	-
<u>Region II - West Central</u>										
Nanticoke (Port Dover)	2860	1380	10248	10083	10008	31719	-	-	-	-
<u>Region III - Central</u>										
Midland	36446	3672	37067	20755	4560	66054	-	-	-	-
<u>Region IV - Southeastern</u>										
Cornwall	47670	29116	55091	41620	16353	142180	-	-	26503	-
Prescott	6887	1730	7238	14980	5393	29341	-	-	2105	-
<u>Region V - Northeastern</u>										
Espanola	1772	1139	1455	6407	1407	10408	-	-	-	1700
Mattagami Timmins	25033	2415	12821	22507	4831	42574	-	-	-	-
Parry Sound	8240	9227	20465	18358	4680	52730	-	-	-	-
Sault Ste. Marie	27302	3544	31685	75831	4609	115669	-	-	24499	-
<u>Region VI - Northwestern</u>										
Fort Frances	6914	3457	9649	11763	13158	38027	-	-	-	-
CONVENTIONAL ACTIVATED SLUDGE PLANTS										
<u>Region I - Southwestern</u>										
Chatham	76146	15452	24526	90969	18246	149193	-	-	-	-
Ingersoll	16309	2800	8574	29558	3267	44199	-	-	4852	-
St. Marys	10472	4083	2525	12844	3434	22886	-	-	-	-
Tillsonburg	12416	2781	15449	15801	6025	40056	(68)	-	-	-
Van Astra	1782	993	2013	4734	776	8516	-	-	929	(1098)
Wallaceburg	58720	3403	19025	27254	9422	59104	-	-	12252	-
<u>Region II - West Central</u>										
Brantford	36826	1389	79895	104629	13745	199658	-	-	51472	-
Cambridge (Galt)	67884	3573	37741	53784	8647	103745	395	-	4934	-
Cambridge (Preston)	42405	1605	11913	40428	6234	60178	-	-	3166	-
Delhi Twp. (Delhi)	7961	1499	7752	8506	4691	22448	-	-	-	-
Dunnville	17401	1547	7787	28866	4641	42841	-	-	-	-
Fergus	8883	1683	6124	8984	1422	18213	-	-	-	-
Haldimand (Caledonia)	13390	3934	7464	6942	5804	24144	-	-	-	-
Haldimand (Hagersville)	5130	2031	3826	4936	5716	16509	-	-	-	-
Kitchener	219238	8942	98260	143901	17841	268944	-	-	6030	-
Simcoe	38963	615	22349	31093	6264	60321	-	-	-	-
Waterloo	91253	4089	33321	88051	5227	130688	-	-	6358	-
Woolwich Twp. (Elmira)	6744	334	1774	9828	2302	14238	-	-	1856	-
<u>Region III - Central</u>										
Burlington D.L.	12356	111	6585	16823	1287	24806	-	-	-	-
Campbellford	9619	1539	2586	13238	2942	20305	-	-	2841	-
Halton Hills (Georgetown)	25660	3073	13744	29337	3503	49657	-	-	11711	-
Huntsville	10410	13391	8883	16094	5251	43619	110	-	3442	-
South Peel Sewage System	966162	196344	368640	1016291	110149	1691424	(472)	-	93075	-
<u>Region IV - Southeastern</u>										
Belleville	73793	12835	41935	70385	12620	137775	-	-	23045	-
Kingston Twp.	27531	2020	17441	33628	5312	58401	-	-	-	-
Sidney Twp. (Batawa)	473	1710	1760	4186	424	8080	-	-	-	-
Trenton	6321	5335	997	23948	6329	36609	-	-	-	-
<u>Region V - Northeastern</u>										
North Bay	75336	319	22816	76650	15475	115260	-	-	18347	-
Sturgeon Falls	15943	10335	7053	20070	2482	39940	-	-	2953	-
Valley East	18439	3917	2454	40651	6590	53612	226	-	3001	-
HIGH RATE ACTIVATED SLUDGE PLANTS										
<u>Region I - Southwestern</u>										
Meaford	7745	1908	371	16567	3892	22738	289	-	1361	-
<u>Region II - West Central</u>										
Cambridge (Hespeler)	15982	736	5564	26136	3257	35693	-	-	1505	-
Palmerston	279	-	-	-	142	142	-	-	-	-
<u>Region III - Central</u>										
Bradford	13483	6677	10175	23006	4948	44806	-	-	-	-
<u>Region IV - Southeastern</u>										
Carleton Place	4481	13610	4363	14839	5242	38054	-	-	1135	-
<u>Region V - Northeastern</u>										
Sudbury	77104	23382	28681	268982	30033	351078	-	-	-	-

Table XXII

OPERATING EXPENDITURES

PROJECT	GRAND TOTAL	Regular Staff	Casual (Unclassified) Staff	TOTAL SALARIES AND WAGES	TOTAL EMPLOYEE BENEFITS	TOTAL TRANSPORTATION AND COMMUNICATIONS	Insurance	Sludge Haulage	Repairs and Maintenance	Other Services
EXTENDED AERATION PLANTS										
<u>Region I - Southwestern</u>										
Belle River	97544	45804	-	45804	5244	1476	2558	-	(1)	724
Mildmay	-	-	-	-	-	-	-	-	-	-
Moore Twp. (Corunna)	62865	21274	-	21274	4016	1113	434	13162	117	(2437)
Moore Twp. (Courtright)	44848	22178	-	22178	1902	251	4	2427	846	1167
Paisley	33221	16380	2272	18652	2009	1495	529	216	53	1309
Southampton	64900	29204	-	29204	5546	2434	1069	4019	-	(343)
Westminster Twp.	49096	18448	12784	31232	2192	784	322	2561	2150	182
<u>Region II - West Central</u>										
Elora	19330	6297	463	6297	1111	2971	190	388	151	140
Grand Valley	31552	12872	-	12872	3218	2029	454	4176	496	1104
Haldimand (Cayuga)	32202	15924	133	16057	-	2167	533	79	334	2747
Paris	50331	25180	238	25418	1973	2867	408	356	3746	636
Wellesley Twp. (Wellesley)	22025	7498	1189	8687	-	2685	438	2073	426	1
Wilmot Twp. (Baden)	25542	123	-	123	-	932	739	2018	9453	289
Woolwich Twp. (St. Jacobs)	34451	5403	9644	15047	294	(793)	478	2529	1779	1698
<u>Region III - Central</u>										
Alliston	94608	39108	-	39108	4898	2483	1037	9262	1107	560
Burlington Skyway	500910	132716	1643	134359	17724	2382	6663	66256	16835	1488
Coldwater	24543	-	10272	10272	381	780	471	1495	2188	62
Fenelon Falls	45041	22191	2238	24429	2733	688	728	2322	1529	618
Hastings	50262	20174	(283)	19891	1628	2574	1008	5616	1346	823
Norwood	33257	3044	15056	18100	451	902	103	1900	1108	460
<u>Region IV - Southeastern</u>										
Bancroft	70230	31023	2020	33043	3519	2491	1753	3852	953	-
Barry's Bay	46889	18294	1128	19422	3994	1666	847	505	388	1308
Chalk River	45435	22363	-	22363	5579	1728	834	-	252	1400
Deseronto	66383	35656	(962)	34694	5002	4745	1120	1787	1194	294
Eganville	44476	21599	1110	22709	3928	1938	896	2442	1001	785
Ernestown (Odessa)	37698	16836	-	16836	-	5495	846	-	1429	206
Frankford	53698	17850	-	17850	5980	6456	1123	-	277	316
L'Orignal	31850	17472	(1589)	15883	4762	467	1157	-	1400	(181)
Marmora	63173	28822	-	28822	3807	1649	1380	725	(585)	327
Merrickville	47272	27520	1701	29221	4011	1466	558	685	1307	820
Pittsburgh Twp. (Cana)	2158	-	-	2158	-	237	38	90	-	-
<u>Region V - Northeastern</u>										
Black River - Matheson	39142	15001	4095	19096	1860	1534	701	720	127	150
Chelmsford	62071	33950	-	33950	4110	1043	66	324	-	786
Latchford	17474	-	9877	1027	-	-	367	464	302	25
Nickel Centre (Coniston)	39440	16657	3301	19958	2161	1536	1017	1268	2543	849
Rayside-Balfour (Azilda)	62138	33109	-	33109	3821	897	1925	924	76	874
Smooth Rock Falls	37788	17043	4463	21506	2052	2116	996	771	250	85
<u>Region VI - Northwestern</u>										
Geraldton	69631	(3492)	(2302)	(5794)	-	3240	687	-	11120	4059
Ignace Twp.	55041	18725	13784	32509	2380	2601	676	-	957	145
Pickle Lake	35480	8855	12752	21607	980	2384	141	-	1890	259
Schreiber	37098	18019	2010	20029	1962	700	1110	-	968	212
CONTACT STABILIZATION PLANTS										
<u>Region III - Central</u>										
Port McNicoll	26576	113	11618	11731	227	1377	478	1528	2036	396
<u>Region V - Northeastern</u>										
Halleybury	48615	24271	58	24329	3562	1153	830	2906	2486	40
Iroquois Falls	67355	-	33247	3741	1181	3741	1817	7745	1198	20
Kirkland Lake	164417	51395	4346	55741	5958	3005	3321	20525	6195	727
Moosonee	35389	15100	3200	18300	2544	1190	1080	-	2499	35
Whitney & Tisdale	121441	34555	7161	41716	4125	2836	2116	12596	898	1020
<u>Region VI - Northwestern</u>										
Ear Falls	75338	43879	7490	51369	5191	3676	659	-	1477	575
Longlac Twp.	54709	17045	12846	29891	1856	791	575	-	4865	206
Red Lake	19532	(1279)	665	(614)	-	1733	1006	-	562	50
TERTIARY TREATMENT										
<u>Region I - Southwestern</u>										
Stratford	230651	105867	485	106352	14298	4073	4560	24545	1670	538
<u>Region II - West Central</u>										
Orangeville	126059	47790	2648	50438	8314	363	1448	15181	612	1264
<u>Region III - Central</u>										
Dysart et al Twp. (Haliburton)	23720	378	13358	13736	400	833	651	1023	411	365

Table XXII - Cont'd

PROJECT	TOTAL SERVICES	Machinery and Equipment	Chemicals	Utilities	Other Supplies and Equipment	TOTAL SUPPLIES AND EQUIPMENT	TOTAL ACQUISITION/ CONSTRUCTION OF PHYSICAL ASSETS	TOTAL TRANSFER PAYMENTS	OTHER TRANSACTIONS	INTER-MINISTRY EXP. REFUNDS
<u>EXTENDED AERATION PLANTS</u>										
<u>Region I - Southwestern</u>										
Belle River	3281	9918	682	25214	4608	40422	-	-	1317	-
Mildmay	-	-	-	-	-	-	-	-	-	-
Moore Twp. (Corunna)	11276	2334	4849	14637	2718	24538	-	-	648	-
Moore Twp. (Courtright)	4444	4447	1233	9667	612	15959	-	-	114	-
Paisley	2107	1843	392	4423	2250	8908	-	-	50	-
Southampton	4745	2944	1237	10914	7263	22358	-	-	613	-
Westminster Twp.	5215	458	724	6387	2104	9673	-	-	-	-
<u>Region I - West Central</u>										
Elora	869	479	2321	4152	213	7165	-	-	454	-
Grand Valley	6230	1156	1033	3126	2233	6548	481	-	174	-
Haldimand (Cayuga)	3693	947	328	5210	3169	9654	-	-	631	-
Paris	5146	4854	469	6839	2765	14927	-	-	-	-
Wellesley Twp. (Wellesley)	2938	111	2587	4090	927	7715	-	-	-	-
Wilmot Twp. (Baden)	12499	162	3898	5910	1235	11205	-	-	783	-
Woolwich Twp. (St. Jacobs)	6484	1138	3892	3844	3054	11928	-	-	1491	-
<u>Region III - Central</u>										
Alliston	11966	14496	2987	11813	6642	35938	-	-	215	-
Burlington Skyway	91242	4343	41199	205477	4184	255203	-	-	-	-
Coldwater	4216	2591	284	5308	711	8894	-	-	-	-
Fenelon Falls	5197	1635	2063	5852	1857	11407	-	-	587	-
Hastings	8793	1388	3500	6181	5588	16657	-	-	719	-
Norwood	3571	912	1494	4326	2867	9599	-	-	634	-
<u>Region IV - Southeastern</u>										
Bancroft	6558	3940	1159	9163	10357	24619	-	-	-	-
Barry's Bay	3048	2643	1255	6371	7847	18116	-	-	643	-
Chalk River	2486	2103	690	5398	4853	13044	-	-	235	-
Deseronto	4395	1829	469	7128	2037	11463	-	-	6084	-
Eganville	5124	2717	746	4430	2884	10777	-	-	-	-
Ernestown (Odessa)	2481	1924	1915	4509	4538	12886	-	-	-	-
Frankford	1719	3036	2776	7966	7770	21548	-	-	145	-
L'Orignal	2376	2097	1229	1901	2892	8119	125	-	118	-
Marmora	1847	13954	1521	6089	4284	25848	-	-	1200	-
Merrickville	3370	1466	211	5207	1974	8858	-	-	346	-
Pittsburgh Twp. (Cana)	128	-	424	1423	212	2059	2	-	-	-
<u>Region V - Northeastern</u>										
Black River - Matheson	1698	1466	366	10734	2112	14678	-	-	276	-
Chelmsford	1176	4042	861	13700	3189	21792	-	-	-	-
Latchford	1158	-	-	4023	28	4051	-	-	1361	-
Nickel Centre (Coniston)	5677	179	562	6208	2007	8956	-	-	1152	-
Rayside - Balfour (Azilda)	3799	2854	1130	15030	(308)	18706	-	-	1806	-
Smooth Rock Falls	2102	703	390	7686	915	9694	-	-	318	-
<u>Region VI - Northwestern</u>										
Geraldton	15866	5178	1252	17039	30680	54149	-	-	2120	-
Ignace Twp.	1778	1645	1957	8414	3733	15749	-	-	24	-
Pickle Lake	2290	3034	397	398	4390	8219	-	-	-	-
Schreiber	2290	697	278	8409	1701	11085	-	-	1032	-
<u>CONTACT STABILIZATION PLANTS</u>										
<u>Region III - Central</u>										
Port McNicoll	4438	2172	562	5017	1052	8803	-	-	-	-
<u>Region V - Northeastern</u>										
Halleybury	6262	923	2032	9025	136	12116	-	-	1193	-
Iroquois Falls	10780	2127	874	12803	2084	17888	-	-	518	-
Kirkland Lake	30768	1188	101	37892	5582	44763	-	-	24182	-
Moosonee	3614	3704	1110	8687	1806	15307	-	-	1634	-
Whitney & Tisdale	16630	9323	4747	31900	9662	55632	-	-	502	(7400)
<u>Region VI - Northwestern</u>										
Ear Falls	2711	6122	987	3845	2636	13590	-	-	(1199)	-
Longlac Twp.	5646	3676	1022	8832	2713	16243	-	-	282	-
Red Lake	1618	2032	2036	8398	1599	14065	-	-	2730	-
<u>TERTIARY TREATMENT</u>										
<u>Region I - Southwestern</u>										
Stratford	31313	695	22092	31417	8278	62482	-	-	12133	-
<u>Region II - West Central</u>										
Orangeville	18505	2729	18921	22315	3621	47586	-	-	853	-
<u>Region III - Central</u>										
Dysart et al Twp. (Haliburton)	2450	393	142	5270	496	6301	-	-	-	-

Table XXIII

OPERATING COST SUMMARY

PROJECT	TOTAL OPERATING COST dollars	UNIT OPERATING COSTS		
		\$ per Mil. Gal.	\$ per lb BOD rem.	\$ per lb SS rem.
<u>PRIMARY TREATMENT PLANTS</u>				
<u>Region I - Southwestern</u>				
Owen Sound	176114	109	20	06
Point Edward	54322	356	36	11
<u>Region II - West Central</u>				
Nanticoke (Port Dover)	67546	278	12	7
<u>Region III - Central</u>				
Midland	153869	232	59	15
<u>Region IV - Southeastern</u>				
Cornwall	370861	82	37	16
Prescott	79513	227	108	40
<u>Region V - Northeastern</u>				
Espanola	42861	246	39	21
Mattagami Timmins	149474	98	20	6
Parry Sound	115914	354	48	26
Sault Ste. Marie	360875	106	20	12
<u>Region VI - Northwestern</u>				
Fort Frances	108597	138	58	22
<u>CONVENTIONAL ACTIVATED SLUDGE PLANTS</u>				
<u>Region I - Southwestern</u>				
Chatham	447057	231	14	8
Ingersoll	149479	364	22	11
St. Marys	78664	392	14	19
Tillsonburg	116697	316	31	16
Van Astra	39739	632	126	119
Wallaceburg	216880	599	50	37
<u>Region II - West Central</u>				
Brantford	573841	162	11	7
Cambridge (Galt)	314763	166	11	11
Cambridge (Preston)	203572	329	6	6
Delhi Twp. (Delhi)	59910	386	34	24
Dunnville	117062	328	23	34
Fergus	59481	250	23	16
Haldimand (Caledonia)	75616	723	111	75
Haldimand (Hagersville)	44603	334	34	22
Kitchener	836386	159	8	9
Simcoe	175343	210	10	9
Waterloo	362745	170	8	8
Woolwich Twp. (Elmira)	65635	326	16	26
<u>Region III - Central</u>				
Burlington D. L.	81293	140	12	6
Campbellford	85545	193	32	18
Halton Hills (Georgetown)	166407	189	16	11
Huntsville	116687	900	97	101
South Peel - Sewage System	4001712	226	10	10
<u>Region IV - Southeastern</u>				
Belleville	400354	154	13	9
Kingston Twp.	167599	189	14	15
Sidney Twp. (Batawa)	25110	592	148	116
Trenton	87297	119	18	12
<u>Region V - Northeastern</u>				
North Bay	398466	158	12	8
Sturgeon Falls	101191	184	28	24
Valley East	156464	418	36	18
<u>HIGH RATE ACTIVATED SLUDGE PLANTS</u>				
<u>Region I - Southwestern</u>				
Meaford	76181	342	54	33
<u>Region II - West Central</u>				
Cambridge (Hespeler)	103795	315	17	20
Palmerston	459	N/A	N/A	N/A
<u>Region III - Central</u>				
Bradford	103232	446	22	12
<u>Region IV - Southeastern</u>				
Carleton Place	80396	176	N/A	N/A
<u>Region V - Northeastern</u>				
Sudbury	692515	169	16	16

Table XXIII - Cont'd.

OPERATING COST SUMMARY

PROJECT	TOTAL OPERATING COST dollars	UNIT OPERATING COSTS		
		\$ per Mil. Gal.	\$ per lb BOD rem.	\$ per lb SS rem.
<u>EXTENDED AERATION PLANTS</u>				
<u>Region I - Southwestern</u>				
Belle River *	97544	3297	785	464
Mildmay	-	-	-	-
Moore Twp. (Corunna)	62865	580	59	67
Moore Twp. (Courtright)	44848	3734	339	311
Paisley	33221	1397	117	91
Southampton	64900	785	88	68
Westminster Twp.	49096	362	27	13
<u>Region II - West Central</u>				
Elora	19330	352	33	31
Grand Valley	31552	1360	84	72
Haldimand (Cayuga)	32202	640	54	45
Paris	50331	294	21	21
Wellesley Twp. (Wellesley)	22025	841	50	57
Wilmot Twp. (Baden)	25542	670	40	47
Woolwich Twp. (St. Jacobs)	35451	470	22	36
<u>Region III - Central</u>				
Alliston	94608	426	19	22
Burlington Skyway	500910	103	6	3
Coldwater	24543	1067	213	381
Fenelon Falls	45041	690	90	71
Hastings	50262	1292	73	39
Norwood	33257	1017	156	145
<u>Region IV - Southeastern</u>				
Bancroft	70230	1380	251	260
Barry's Bay	46889	2051	111	149
Chalk River	45435	1817	132	164
Deseronto	66383	1181	74	65
Eganville	44476	1629	111	84
Ernestown (Odessa)	37698	N/A	N/A	N/A
Frankford	53698	N/A	N/A	N/A
L'Orignal	31850	804	79	51
Marmora	63173	2024	253	285
Merrickville	47272	1784	198	120
Pittsburgh Twp. (Cana)	4584	2084	197	192
<u>Region V - Northeastern</u>				
Black River - Matheson	39142	594	175	116
Chelmsford	62071	296	24	11
Latchford	17474	803	89	71
Nickel Centre (Coniston)	39440	308	33	38
Rayside-Balfour (Azilda)	62138	426	51	36
Smooth Rock Falls	37788	410	58	64
<u>Region VI - Northwestern</u>				
Geraldton	69631	440	96	86
Ignace Twp.	55041	923	70	75
Pickle Lake **	35480	2319	2389	18010
Schreiber	37098	1257	85	43
<u>CONTACT STABILIZATION PLANTS</u>				
<u>Region III - Central</u>				
Port McNicoll	26576	381	58	42
<u>Region V - Northeastern</u>				
Halleybury	48615	257	24	15
Iroquois Falls	67355	215	34	19
Kirkland Lake	164417	182	49	34
Moosonee	35389	Est. 808	Est. 238	Est. 102
Whitney & Tisdale	121441	381	47	27
<u>Region VI - Northwestern</u>				
Ear Falls	75338	1720	156	115
Longlac Twp.	54709	1094	104	50
Red Lake	19532	263	45	26
<u>TERTIARY TREATMENT</u>				
<u>Region I - Southwestern</u>				
Stratford	230651	155	18	12
<u>Region II - West Central</u>				
Orangeville	126059	231	22	17
<u>Region III - Central</u>				
Dysart et al Twp. (Haliburton)	23720	2367	162	82

* 92 days flow

** 208 days flow

Waste Stabilization Ponds

Waste stabilization ponds are usually used for the treatment of sewage from smaller municipalities.

The results of sampling are included in Tables XXIV and XXV along with the flow data. These averages should not be taken as entirely representative since they are usually based on small numbers of grab samples. While effluent concentrations for a particular installation are fairly consistent, influent values vary widely. The apparent reduction in nitrogen concentrations measured as total Kjeldahl nitrogen is partly the result of conversion of organic nitrogen to nitrates and nitrites which are not measured.

Operating expenditures charged to the projects are summarized Tables XXVI and XXVII. In many cases they do not represent the entire cost of operation.

Corresponding data for waste stabilization ponds with aerated cells appear in Tables XXVIII and XXIX.

Table XX

OPERATING DATA-LAGOONS

PROJECT	FLOW		AVERAGE LOADING lb. BOD per acre per day	INFLUENT				CELL				CONTENTS		EFFLUENT				
	TOTAL million gallons	AVERAGE DAY mil. gallons		NUMBER of SAMPLES	BOD mg/l	SUSP SOLIDS mg/l	TOTAL P mg/l P	KJELDAHL NITROGEN mg/l N	NUMBER of SAMPLES	BOD mg/l	SUSP SOLIDS mg/l	TOTAL P mg/l P	KJELDAHL NITROGEN mg/l N	NUMBER of SAMPLES	BOD mg/l	SUSP SOLIDS mg/l	TOTAL P mg/l P	KJELDAHL NITROGEN mg/l N
<u>Region I - Southwestern</u>																		
Aylmer	-	-	-	23	166	218	13.0	26	28	16	27	3.3	6	67	9	19	1.9	5
Belmont	-	-	-	21	13	174	6.3	30	13	13	32	0.4	3	-	-	-	-	
Chesley	-	0.28	7	5	44	56	2.3	16	12	20	15	2.8	12	6	12	11	2.4	7
Comber - Tilbury	247.2	0.067	8	17	14	26	2.0	7	2	49	60	-	-	-	-	-	-	
Cottam - Gosfield	13.86	0.037	0.6	2	32	39	4.5	26	-	-	-	-	3	7	35	0.8	5	
Dundalk	56.86	0.16	7	11	69	86	4.8	28	18	13	14	0.9	7	14	7	14	0.5	4
Dutton	29.81	0.082	14	11	167	406	8.8	52	7	77	294	4.9	31	9	20	54	0.5	9
E. Zorra - Tavistock Twp.	84.80	0.23	16	20	220	170	10.4	52	-	-	-	-	-	28	26	64	5.5	8
Enniskillen Twp. - Oil City	4.09	0.011	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	
Essex N.E.	62.62	0.17	5	10	72	46	4.7	31	8	192	32	1.5	6	16	13	102	0.9	5
Essex S.W.	112.54	0.30	7	9	85	70	4.8	19	10	17	47	0.9	4	28	12	45	0.6	4
Exeter	-	-	-	13	77	70	3.8	26	-	-	-	-	-	6	9	39	1.2	3
Forest	58.62	0.16	-	-	-	-	-	-	-	-	-	-	-	4	21	37	2.5	9
Glencoe	23.92	0.066	6	9	200	361	2.1	32	11	40	75	2.1	10	-	-	-	-	
Harrow	56.97	0.15	8	11	234	652	14.6	72	41	7	13	1.1	4	2	2	-	1.4	12
Hensall	17.97	0.049	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lucan	73.90	0.20	21	2	103	147	5.5	50	-	-	-	-	-	-	-	-	-	
Markdale	-	-	-	9	109	139	6.6	32	7	44	192	3.1	13	11	17	21	1.8	9
Merlin - Tilbury E.	9.37	0.025	3	7	275	318	6.2	56	5	19	55	0.6	4	-	-	-	-	
Milverton	54.44	0.15	714	14	7196	320	31.0	90	2	29	45	8.1	17	24	40	59	4.4	15
Mitchell	226.3	0.62	31	1	345	244	5.0	16	3	4	4	1.6	5	14	3	7	1.5	3
Mitchell's Bay	1.21	0.0033	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	
Moore Twp. Brigden(Started Mar. 14)	9.79 Est.	0.032	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	
Norwich	5.32	0.014	0.8	8	165	231	6.2	49	8	23	70	1.9	8	-	-	-	-	
Oil Springs	9.34	0.025	-	0	-	-	-	-	0	-	-	-	-	-	-	-	-	
Petrolia	N/A	N/A	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Port Stanley	-	-	-	19	108	190	5.3	28	31	15	29	2.4	7	40	3	13	0.5	3
Ridgetown	56.73	0.16	6	7	164	490	7.4	45	19	24	73	2.1	9	3	3	36	0.3	3
Rodney	20.97	0.057	10	12	293	287	8.9	78	7	32	75	2.9	12	3	18	160	1.0	8
Seaforth	120.4	0.33	15	12	137	128	6.9	22	17	18	27	2.0	8	21	14	26	1.5	6
Sombra Twp. (Pt. Lambton)	28.48	0.065	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	
Sombra Twp. (Sombra)	11.80	0.032	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	
Watford	46.73	0.13	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	
West Lorne	39.47	0.11	13	9	239	577	5.6	34	6	18	28	1.6	8	12	5	16	0.7	5
Warton	189.1	0.52	33	10	97	177	4.8	20	-	-	-	-	-	15	22	48	1.7	8
Wingham	205.9	0.56	21	13	114	134	5.4	22	13	23	21	2.7	12	13	11	21	2.2	8
Zurich	26.56	0.072	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	
<u>Region II - West Central</u>																		
Arthur	68.02	0.19	9	11	144	179	5.6	15	-	-	-	-	-	17	16	49	1.8	14
Harriston	128.9	0.35	16	15	124	229	9.9	47	-	-	-	-	-	8	19	28	4.9	16
Nanticoke - (Jarvis)	63.40	0.17	22	10	154	186	10.0	40	-	-	-	-	-	12	12	18	0.7	10
Norfolk (Pt. Rowan)	18.03	0.05	4	4	178	142	7.1	25	4	13	15	2.9	17	12	19	76	1.5	9
Shelburne	115.44	0.32	33	18	142	261	7.1	35	-	-	-	-	-	18	38	57	4.2	21
Wilmot Twp. (New Hamburg)	80.96	0.22	13	41	158	374	9.4	52	4	22	35	5.8	26	34	10	23	1.1	19

Table XXV

OPERATING DATA-LAGOONS

PROJECT	FLOW			INFLUENT				CELL CONTENTS				EFFLUENT						
	TOTAL million gallons	AVERAGE DAY mil. gallons	AVERAGE LOADING lb. BOD per acre per day	NUMBER of SAMPLES	BOD mg/l	SUSP SOLIDS mg/l	TOTAL P mg/l P	KJELDAHL NITROGEN mg/l N	NUMBER of SAMPLES	BOD mg/l	SUSP SOLIDS mg/l	TOTAL P mg/l P	KJELDAHL NITROGEN mg/l N	NUMBER of SAMPLES	BOD mg/l	SUSP SOLIDS mg/l	TOTAL P mg/l P	KJELDAHL NITROGEN mg/l N
<u>Region III - Central</u>																		
Beeton	47.34	0.13	7	1	75	109	4.4	-	-	-	-	-	-	-	-	-	-	-
Bracebridge	145.38	0.40	16	14	131	129	7.1	33	36	15	35	1.8	10	18	3	10	0.4	7
Brighton	-	0.46	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-
Elmvale	72.97	0.20	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-
Havelock (184 days flow)	20.50	0.11	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-
Lakefield	91.41	0.25	11	15	107	135	5.0	30	22	13	37	1.8	12	14	10	20	0.9	10
Omeme	13.35	0.037	3	11	129	218	8.3	56	9	5	15	1.4	4	-	-	-	-	-
<u>Region IV - Southeastern</u>																		
Alexandria	-	1.25	59	1	200	80	18	29	-	-	-	-	-	1	30	50	7.6	6
Alfred	37.94	0.10	3	21	150	242	9.9	50	-	-	-	-	-	2	5	15	1.1	1
Chesterville	55.18	0.15	6	17	56	72	4.5	20	-	-	-	-	-	4	11	35	3.5	7
Ernestown - (Amherstview)	-	-	-	-	-	-	-	-	-	-	-	-	-	19	12	29	2.5	5
Goulbourn Twp. (Richmond)	154.48	0.42	4	22	38	67	4.0	18	-	-	-	-	-	-	-	-	-	-
Lancaster	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leeds & Lansdowne	5.09	0.014	-	-	-	-	-	-	5	18	66	0.7	4	-	-	-	-	-
Madoc	53.39	0.15	5	14	99	136	6.0	28	16	7	20	1.1	4	7	4	15	0.4	2
Petawawa (Pumping Station)	31.90	0.087	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-
Plantagenet	41.6	0.11	8	20	115	191	7.8	37	-	-	-	-	-	5	27	30	0.6	9
Rockland	82.4	0.23	5	42	45	42	4.2	21	-	-	-	-	-	4	25	22	3.6	8
St. Isidore de Prescott	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stirling	63.12	0.17	24	7	179	165	17.0	36	4	18	29	2.8	13	9	24	38	2.4	7
Tweed Village	116.0	0.32	7	7	65	76	4.6	24	-	-	-	-	-	9	10	34	0.5	3
Vankleek Hill	45.21	0.12	7	9	150	191	10.2	38	-	-	-	-	-	-	-	-	-	-
Westport	12.78	0.035	10	2	165	303	7.9	43	3	22	50	2.4	13	9	18	25	1.1	13
Winchester	58.73	0.16	11	24	101	172	9.2	33	-	-	-	-	-	4	17	21	3.3	7
<u>Region V - Northeastern</u>																		
Black R. - Matheson - Ramore	-	-	-	25	99	166	6.5	50	-	-	-	-	-	25	41	58	4.8	20
Black R. - Matheson - Val Gagne	-	-	-	18	201	404	10.6	55	6	13	31	3.6	12	12	6	13	3.2	5
Bruce Mines	24.07	0.066	9	20	114	107	5.1	27	18	12	30	1.3	8	6	11	19	1.7	10
Burk's Falls	19.79	0.054	2	13	81	106	6.7	42	10	7	15	1.1	4	5	5	8	0.6	2
Caldwell Twp. (Verner)	44.13	0.12	7	19	81	144	4.0	26	8	45	35	2.6	15	11	23	25	0.9	9
Englehart	99.20	0.27	10	22	74	155	4.5	25	22	21	29	2.7	15	22	12	16	2.4	9
Fauquier Twp. - (Moonbeam)	28.94	0.079	19	21	145	151	9.8	32	10	35	172	3.6	19	13	58	107	6.2	27
Halleybury - (N. Cobalt)	21.13	0.058	6	22	105	113	6.7	43	8	8	23	3.2	20	16	12	17	1.9	5
Hearst	248.6	0.68	11	24	78	91	5.3	22	7	21	85	3.1	11	18	22	24	3.1	9
Little Current	63.08	0.17	10	7	59	55	6.8	14	-	-	-	-	-	6	17	18	4.2	9
Manitowaning	16.07	0.044	6	33	95	173	7.0	42	28	22	59	2.8	9	10	10	27	1.7	8
Mattawa	54.07	0.15	6	20	38	43	3.0	16	-	-	-	-	-	20	17	26	2.4	10
Michipicoten - Wawa	-	1.81	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-
New Liskeard	370.2	1.01	19	23	122	138	4.9	24	-	-	-	-	-	55	23	19	4.3	13
N. Himsforth - Callendar	26.07	0.071	6	27	128	155	6.8	37	15	11	17	1.3	6	28	6	25	0.5	4
Powassan	47.25	0.13	15	5	82	150	7.1	51	1	12	14	-	18	4	43	87	4.3	25
Ratter & Dunnet - Warren	14.93	0.041	2	18	102	308	5.8	34	17	23	32	1.4	10	-	-	-	-	-
Shackleton-Machin Twp. (Fauquier)	32.44	0.089	8	22	94	132	5.1	32	12	15	30	0.7	6	13	20	30	1.8	16
Webbwood	5.13	0.014	6	15	457	354	13.0	92	7	20	63	1.3	8	-	-	-	-	-
<u>Region VI - Northwestern</u>																		
Emo Twp.	-	-	-	4	177	601	9.2	55	-	-	-	-	-	33	14	34	2.6	13

Table XXVI

OPERATING EXPENDITURES-LAGOONS

PROJECT	GRAND TOTAL	Regular Staff	Casual (Unclassified) Staff	TOTAL SALARIES AND WAGES	TOTAL EMPLOYEE BENEFITS	TOTAL TRANSPORTATION AND COMMUNICATIONS	Insurance	Sludge Haulage	Repairs and Maintenance	Other Services
<u>WASTE STABILIZATION PONDS</u>										
<u>Region I - Southwestern</u>										
Aymer	38898	15965	-	15965	-	313	149	100	65	2216
Belmont	5719	3552	-	3552	-	72	184	25	-	615
Chesley	2211	96	-	96	-	38	77	-	-	7
Comber - Tilbury	9091	(2341)	4241	1900	-	258	160	-	3777	592
Cottam - Gosfield	5947	260	2682	2942	86	138	126	-	120	34
Dundalk	21129	520	-	520	-	171	118	-	-	16917
Dutton	11469	394	7190	7584	255	98	87	-	-	(787)
E. Zorra - Tavistock Twp.	7873	689	-	689	-	317	72	-	112	59
Enniskillen Twp. - Oil City	22030	-	13098	13098	357	-	31	-	94	30
Essex N.E. } Essex S.W. }	30271	3745	5536	9281	145	1955	313	-	5597	1321
Exeter	4621	220	-	220	-	25	152	-	-	57
Forest	10395	-	4401	4401	162	34	74	-	-	150
Glencoe	9542	-	6058	6058	226	-	272	-	27	115
Harrow	12356	5393	-	7185	61	283	518	-	331	1286
Hensall	11369	-	3698	3698	125	-	105	-	3599	300
Lucan	7400	128	-	128	-	-	96	-	5212	42
Markdale	1833	231	-	231	-	39	1	-	-	44
Merlin - Tilbury East	8799	310	6193	6503	226	130	173	-	-	-
Milverton	19488	4678	6517	11195	203	902	32	-	823	318
Mitchell	16932	755	3410	4165	122	251	67	-	140	59
Mitchell's Bay	1043	666	-	666	-	-	28	-	-	10
Moore Twp. Brigden	3336	2226	-	2226	-	40	46	-	215	518
Norwich	21097	2837	3775	6612	129	375	255	-	10825	52
Oil Springs	1313	73	-	73	-	4	100	-	-	8
Petrolia	8882	918	-	918	-	180	49	-	1212	77
Port Stanley	21186	8739	-	8739	-	337	1120	75	686	2056
Ridgetown	16470	554	7267	7821	270	497	220	-	445	519
Rodney	10589	395	4278	4673	155	215	60	-	1310	625
Seaforth	16309	499	5321	5820	206	231	294	-	574	1083
Sombra Twp. (Pt. Lambton) } Sombra Twp. (Sombra) }	13097	4513	-	4513	-	53	505	-	4128	1415
Watford	6821	43	3972	4015	142	-	122	-	-	38
West Lorne	8863	183	4797	4980	180	74	64	-	(48)	52
Warton	9928	-	4081	4081	-	-	91	-	556	216
Wingham	7259	2126	-	2126	-	677	94	-	917	28
Zurich	4237	284	-	284	-	-	83	-	2044	35
<u>Region II - West Central</u>										
Arthur	15089	1295	5350	6645	185	507	322	-	1337	2138
Harriston	1176	113	-	113	-	138	92	-	-	26
Nanticoke - (Jarvis)	8978	4611	-	4611	-	855	23	-	379	258
Norfolk (Pt. Rowan)	7570	282	5042	5324	184	76	75	-	248	21
Shelburne	492	285	-	285	-	74	68	-	-	-
Wilmot Twp. (New Hamburg)	9422	431	-	431	-	379	69	-	470	165
<u>Region III - Central</u>										
Beeton	14785	4532	-	4532	-	354	172	-	264	-
Bracebridge	3395	-	-	-	-	-	59	-	-	-
Brighton	683	-	-	-	-	-	583	-	-	-
Elmvale	3564	-	-	-	-	-	51	-	3228	285
Havelock	13353	792	7516	8308	278	17	783	-	600	150
Lakefield	18964	719	9523	10242	357	546	437	300	501	631
Omeme	15095	(154)	8644	8490	306	65	318	-	1712	161
<u>Region IV - Southeastern</u>										
Alexandria	8539	4220	-	4220	-	264	63	-	810	45
Alfred	12473	7475	-	7475	-	1280	116	-	160	38
Chesterville	21290	8897	-	8897	3434	1400	99	-	852	1009
Ernestown - (Amherstview)	15346	2965	187	3152	-	3206	122	-	1255	79
Goulbourn Twp. (Richmond)	18401	9044	1546	10590	74	2263	220	-	50	975
Lancaster	8677	6136	28	6164	-	36	66	-	546	48
Leeds & Lansdowne	13808	4785	2438	7223	-	1436	271	-	268	113
Madoc	4556	2018	-	2018	-	274	2	-	-	-
Petawawa (Pumping Station)	27493	19004	-	19004	-	1232	170	-	989	394
Plantagenet	13740	6824	95	6919	-	1342	321	-	1583	52
Rockland	10491	7173	-	7173	-	564	63	-	666	91
St. Isidore de Prescott	16184	4046	-	4046	-	3623	213	-	5	509
Stirling	5068	481	-	481	-	97	113	-	325	-
Tweed Village	7574	2218	-	2218	-	1336	98	-	-	36
Vankleek Hill	17098	8438	804	9242	82	1119	675	-	191	202
Westport	14961	4248	2649	6897	2086	535	93	-	296	666
Winchester	23006	13956	-	13956	1082	693	426	-	996	440

Table XXVI (Cont'd)

Brackets indicate credit.

PROJECT	TOTAL SERVICES	Machinery and Equipment	Chemicals	Utilities	Other Supplies and Equipment	TOTAL SUPPLIES AND EQUIPMENT	TOTAL ACQUISITION/ CONSTRUCTION/ OF PHYSICAL ASSETS	TOTAL TRANSFER PAYMENTS	OTHER TRANSACTIONS	INTER MINISTRY EXP. REFUNDS
<u>WASTE STABILIZATION PONDS</u>										
<u>Region I - Southwestern</u>										
Aylmer	2530	1853	6404	8823	2091	19171	-	-	919	-
Belmont	824	10	302	727	10	1049	-	-	222	-
Chesley	84	862	-	1029	102	1993	-	-	-	-
Comber - Tilbury	4529	1337	50	783	135	2305	-	-	99	-
Cottam - Gosfield	280	1742	-	576	-	2318	-	-	183	-
Dundalk	17035	719	2135	108	180	3142	129	-	132	-
Dutton	(700)	549	2244	1155	136	4084	-	-	148	-
E. Zorra - Tavistock Twp.	243	1164	5153	109	198	6624	-	-	-	-
Enniskillen Twp. - Oil City	155	626	1876	374	709	3585	-	-	4835	-
Essex N.E.	7231	1485	6690	2383	162	10720	-	-	-	-
Essex S.W.										
Exeter	209	-	-	3294	26	3320	-	-	847	-
Forest	224	1680	-	3296	60	5036	-	-	538	-
Glencoe	414	1600	-	815	429	2844	-	-	-	-
Harrow	2135	494	-	1347	349	2190	-	-	502	-
Hensall	4004	1148	-	1380	-	2528	-	-	1014	-
Lucan	5350	929	-	952	-	1881	-	-	41	-
Markdale	45	-	1031	109	21	1161	-	-	357	-
Merlin - Tilbury East	173	1153	-	527	-	1680	-	-	87	-
Milverton	1173	1062	3302	109	655	5128	-	-	887	-
Mitchell	266	440	6468	4332	795	12035	-	-	93	-
Mitchell's Bay	38	-	-	120	-	120	-	-	219	-
Moore Twp. Brigden	779	1	-	48	63	112	-	-	179	-
Norwich	11132	232	-	1145	641	2018	428	-	403	-
Oil Springs	108	626	-	502	-	1128	-	-	-	-
Petrolia	1338	930	4789	670	57	6446	-	-	-	-
Port Stanley	3937	47	2322	4140	186	6695	-	-	1478	-
Ridgetown	1184	1500	2332	1526	1033	6391	-	-	307	-
Rodney	1995	1044	1188	922	11	3165	-	-	386	-
Seaforth	1951	1918	1958	2609	1201	7686	72	-	343	-
Sombra Twp. (Pt. Lambton)	6048	1	-	2153	45	2199	-	-	284	-
Sombra Twp. (Sombra)										
Watford	160	929	-	978	22	1929	219	-	356	-
West Lorne	88	549	2170	619	223	3561	-	-	-	-
Warton	863	1045	-	3654	11	4710	-	-	274	-
Wingham	1039	1333	-	1600	401	3334	-	-	83	-
Zurich	2162	627	-	980	10	1617	-	-	174	-
<u>Region II - West Central</u>										
Arthur	3797	1311	758	1523	330	3922	-	-	33	-
Harriston	118	63	-	1394	(650)	807	-	-	-	-
Nanticoke - (Jarvis)	660	-	1054	600	1198	2852	-	-	-	-
Norfolk (Pt. Rowan)	344	-	1142	375	125	1642	-	-	-	-
Shelburne	68	-	65	-	-	65	-	-	-	-
Wilmot Twp. (New Hamburg)	704	211	4120	3214	91	7636	-	-	272	-
<u>Region III - Central</u>										
Beeton	436	7288	-	1308	867	9463	-	-	-	-
Bracebridge	59	-	3336	-	-	3336	-	-	-	-
Brighton	583	-	-	-	9	9	-	-	91	-
Elmvale	3564	-	-	-	-	-	-	-	-	-
Havelock	1533	55	1403	1618	107	3183	-	-	34	-
Lakefield	1869	74	1403	3571	105	5153	-	-	797	-
Ormelee	2191	1797	-	1239	340	3576	125	-	342	-
<u>Region IV - Southeastern</u>										
Alexandria	918	-	-	3137	-	3137	-	-	-	-
Alfred	314	1886	127	794	530	3337	-	-	67	-
Chesterville	1960	2557	-	1412	1181	5150	389	-	60	-
Ernestown - (Amherstview)	1456	1484	-	5386	662	7532	-	-	-	-
Goulbourn Twp. (Richmond)	1245	56	1145	1768	1260	4229	-	-	-	-
Lancaster	660	-	-	549	1163	1712	-	-	105	-
Leeds & Lansdowne	652	1713	-	1722	646	4081	310	-	106	-
Madoc	2	60	2004	173	9	2246	-	-	16	-
Petawawa (Pumping Station)	1553	738	55	1695	3216	5704	-	-	-	-
Plantagenet	1956	840	195	1435	1053	3523	-	-	-	-
Rockland	820	347	80	93	1321	1841	-	-	93	-
St. Isidore de Prescott	727	5462	-	808	875	7145	-	-	643	-
Stirling	438	-	790	3225	-	4015	-	-	37	-
Tweed Village	134	144	-	2632	860	3636	-	-	250	-
Vankleek Hill	1068	114	-	3922	1524	5560	-	-	27	-
Westport	1055	119	913	864	634	2530	1800	-	58	-
Winchester	1862	524	36	2108	2265	4933	460	-	20	-

Table XXVII

OPERATING EXPENDITURES-LAGOONS

PROJECT	GRAND TOTAL	Regular Staff	Casual (Unclassified) Staff	TOTAL SALARIES AND WAGES	TOTAL EMPLOYEE BENEFITS	TOTAL TRANSPORTATION AND COMMUNICATIONS	Insurance	Sludge Haulage	Repairs and Maintenance	Other Services
<u>WASTE STABILIZATION PONDS Cont'd</u>										
<u>Region V - Northeastern</u>										
Black R. - Matheson - Ramore	5425	1106	-	1106	95	503	12	-	36	30
Black R. - Matheson - Val Gagne	122	95	-	95	13	-	6	-	-	-
Bruce Mines	14215	9434	-	9434	1168	451	173	60	175	212
Burk's Falls	9899	51	5462	5513	204	116	287	-	93	45
Caldwell Twp. (Verner)	13765	5212	2933	8145	455	33	221	-	111	31
Englehart	5982	-	3481	3481	128	278	125	-	766	-
Fauquier Twp. (Moonbeam)	3895	1718	-	1718	55	38	19	-	767	-
Halleybury - (N. Cobalt)	10931	3677	-	3677	390	160	168	-	3416	-
Hearst	17013	136	6337	6473	237	643	321	-	417	82
Little Current	1399	-	-	-	-	-	42	-	-	-
Manitowaning	985	(3939)	9615	5676	319	403	67	-	269	12
Mattawa	2045	-	-	-	-	-	98	-	-	-
Michipicoten	262	-	-	-	-	8	179	-	-	-
New Liskeard	474	-	-	-	-	-	294	-	-	5
N. Himsforth - Callendar	10150	204	5436	5640	196	42	279	-	9	-
Powassan	1807	300	-	300	-	120	24	-	-	-
Ratter & Dunnet - Warren	6258	78	2395	2473	-	37	251	-	1560	452
Shackleton - Machin - (Fauquier Twp.)	16674	5424	1930	7354	792	106	84	-	185	15
Webbwood	6114	130	3840	3970	139	277	134	-	122	16
<u>Region VI - Northwestern</u>										
Emo Twp.	6691	-	-	-	-	15	117	-	840	141

Table XXVIII

OPERATING DATA-AERATED LAGOONS

PROJECT	FLOW			AVERAGE LOADING lb. BOD per acre per day	INFLUENT			
	TOTAL million gallons	AVERAGE DAY mil. gallons	AVERAGE LOADING lb. BOD per acre per day		NUMBER of SAMPLES	BOD mg/l	SUSP SOLIDS mg/l	TOTAL P mg/l P
<u>AERATED LAGOONS</u>								
<u>Region I - Southwestern</u>								
Durham	86.81	0.23	0.3	7	94	126	6.1	41
Kincardine	123.26	0.34	13.0	22	119	210	6.4	35
Listowel	393.90	1.07	36.6	24	236	157	4.4	26
Thornbury	85.96	0.24	41.0	39	433	180	2.6	11
<u>Region II - West Central</u>								
City of Nanticoke (Waterford)	115.98	0.38	117	6	323	144	4.0	24
<u>Region III - Central</u>								
Stayner	67.38	0.18	-	0	-	-	-	-
<u>Region IV - Southeastern</u>								
Almonte	167.72	0.46	8	38	84	90	4.7	22
Gananoque	448.6	1.23	19	1	110	140	7.0	26

Table XXIX

OPERATING EXPENDITURES-AERATED LAGOONS

PROJECT	GRAND TOTAL	Regular Staff	Casual (Unclassified) Staff	TOTAL SALARIES AND WAGES	TOTAL EMPLOYEE BENEFITS	TOTAL TRANSPORTATION AND COMMUNICATIONS	Insurance	Sludge Haulage	Repairs and Maintenance	Other Services
<u>AERATED LAGOONS</u>										
<u>Region I - Southwestern</u>										
Durham	11774	185	-	185	-	7	98	-	186	4256
Kincardine	39000	18971	-	18971	1666	2777	169	-	479	210
Listowel	55442	14893	-	14893	1961	1618	151	-	4142	997
Thornbury	31301	15775	-	15775	1724	590	424	-	1358	1247
<u>Region II - West Central</u>										
City of Nanticoke (Waterford)	24728	6954	-	6954	-	2276	884	-	698	1689
<u>Region III - Central</u>										
Stayner	13828	-	-	-	-	-	225	-	13494	-
<u>Region IV - Southeastern</u>										
Almonte	25631	11963	840	12803	82	710	305	-	742	56
Gananoque	21273	52	-	52	-	3	258	-	3670	110

Table XXVII Cont'd

PROJECT	TOTAL SERVICES	Machinery and Equipment	Chemicals	Utilities	Other Supplies and Equipment	TOTAL SUPPLIES AND EQUIPMENT	TOTAL ACQUISITION/ CONSTRUCTION OF PHYSICAL ASSETS	TOTAL TRANSFER PAYMENTS	OTHER TRANSACTIONS	INTER-MINISTRY EXP. REFUNDS
<u>WASTE STABILIZATION PONDS Cont'd.</u>										
<u>Region V - Northeastern</u>										
Black River - Matheson - Ramore	78	-	-	470	3173	3343	-	-	-	-
Black R. - Matheson - ValGagne	6	-	-	-	8	8	-	-	-	-
Bruce Mines	620	494	-	1663	293	2450	-	-	-	-
Burk's Falls	425	1466	-	2143	-	3909	-	-	92	-
Caldwell Twp. (Verner)	363	-	331	3474	544	4349	-	-	32	-
Englehart	891	-	6	1193	5	1204	-	-	420	-
Fauquier Twp - (moonbeam)	786	166	248	761	123	1298	-	-	-	-
Halleybury - (N. Cobalt)	3584	-	-	1404	-	1404	1620	-	-	-
Hearst	820	251	-	6166	2356	8773	67	-	96	-
Little Current	42	-	-	1357	-	1357	-	-	-	-
Manitowaning	348	209	41	1262	1672	3184	-	-	-	-
Mattawa	98	-	-	1890	-	1890	-	-	70	(150)
Michipicoten	179	-	-	-	75	75	-	-	57	-
New Liskeard	299	-	-	175	-	175	-	-	-	-
N. Himsworth - Callendar	288	233	524	2632	428	3817	-	-	-	-
Powassan	24	-	526	837	-	-	-	-	167	-
Ratter & Dunnet - Warren	2263	159	88	683	483	1413	-	-	-	-
Shackleton - Machin - (Fauquier Twp.)	284	5942	-	1537	659	8138	-	-	72	-
Webbwood	272	661	79	571	95	1406	-	-	50	-
<u>Region VI - Northwestern</u>										
Emo Twp.	1098	132	470	4293	544	5439	-	-	139	-

Table XXVIII Cont'd

OPERATING DATA - AERATED LAGOONS

PROJECT	CELL CONTENTS					EFFLUENT				
	NUMBER of SAMPLES	BOD mg/l	SUSP SOLIDS mg/l	TOTAL P mg/l P	KJELDAHL NITROGEN mg/l N	NUMBER of SAMPLES	BOD mg/l	SUSP SOLIDS mg/l	TOTAL P mg/l P	KJELDAHL NITROGEN mg/l N
<u>AERATED LAGOONS</u>										
<u>Region I - Southwestern</u>										
Durham	-	-	-	-	-	10	36	65	5.0	22
Kincardine	51	16	12	4.0	15	20	11	12	3.4	10
Listowel	6	10	17	0.9	8	6	18	21	0.9	14
Thornbury	39	30	35	2.0	5	16	14	66	1.4	2
<u>Region II - West Central</u>										
City of Nanticoke (Waterford)	12	37	35	4.4	13	6	14	21	1.9	13
<u>Region III - Central</u>										
Stayner	0	-	-	-	-	0	-	-	-	-
<u>Region IV - Southeastern</u>										
Almonte	10	12	22	-	-	14	15	28	8.9	4
Gananoque	4	12	30	2.4	4	2	9	25	2.0	4

Table XXIX Cont'd

PROJECT	TOTAL SERVICES	Machinery and Equipment	Chemicals	Utilities	Other Supplies and Equipment	TOTAL SUPPLIES AND EQUIPMENT	TOTAL ACQUISITION/ CONSTRUCTION OF PHYSICAL ASSETS	TOTAL TRANSFER PAYMENTS	OTHER TRANSACTIONS	INTER-MINISTRY EXP. REFUNDS
<u>AERATED LAGOONS</u>										
<u>Region I - Southwestern</u>										
Durham	4540	1712	-	4534	771	7017	-	-	25	-
Kincardine	858	1200	563	11177	1779	14719	-	-	9	-
Listowel	5290	1594	9133	13668	7255	31650	-	-	30	-
Thornbury	3029	2704	38	6518	745	10905	-	-	178	-
<u>Region II - West Central</u>										
City of Nanticoke (Waterford)	3271	864	3701	6781	844	12190	-	-	37	-
<u>Region III - Central</u>										
Stayner	13719	-	-	-	-	-	-	-	109	-
<u>Region IV - Southeastern</u>										
Almonte	1103	1224	109	7954	1646	10933	-	-	-	-
Gananoque	4036	-	1306	15494	-	16800	155	-	227	-

DESIGN DATA

	PAGE
PRIMARY TREATMENT PLANTS	43
CONVENTIONAL ACTIVATED SLUDGE PLANTS	93
EXTENDED AERATION PLANTS	197
CONTACT STABILIZATION PLANTS	331
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TERTIARY TREATMENT PLANTS	389
WASTE STABILIZATION PONDS WITH AERATED CELLS	403
WASTE STABILIZATION PONDS	419

PRIMARY TREATMENT PLANTS

REGION 1
Southwestern

DESIGN DATA

PROJECT City of Owen Sound WPCP
 PROJECT NO. 2-0069-60
 TREATMENT Primary
 DESIGN FLOW 3.0 mgd
 DESIGN POPULATION 25,000
 BOD - Raw Sewage 180 mg/l
 - Removal 40%
 SS - Raw Sewage 200 mg/l
 - Removal 65%

SEWAGE PUMPING STATION

Screening

- 1 3/4" spacing

Pumps

Type: Worthington
 Size: Three 3150 gpm @ 33' tdh
 (One diesel standby)

PRIMARY TREATMENT

Comminution

Type: Barminator
 Size: One Model C (36")

Grit Removal

Type: Aerated
 Size: One 18 1/2 X 13 X 12' (18,000 gal)
 Retention: 8.6 min

Pre-aeration Tank

Size: One 23' 9" X 13 X 12'
 (23,400 gal)
 Retention: 11.2 min

Air Supply

Type: Sutorbilt
 Size: Two 408 scfm @ 6 psi

Primary Sedimentation

Type: Rex Linkbelt
 Size: Two 78 X 32 X 12 1/2'
 (388,000 gal)

Retention: 3.11 hr
 Loading: Surface, 600 gal/ft²/day
 Weir, 8,260 gal/ft/day

CHLORINATION

Type: W & T
 Size: One 2000 lb/day

Chlorine Contact Chamber

Size: One 31 X 14 X 8' (21,700 gal)
 Retention: 11.2 min

OUTFALL

- 828' to Owen Sound

SLUDGE HANDLING

Digestion System - Two-stage

Primary --

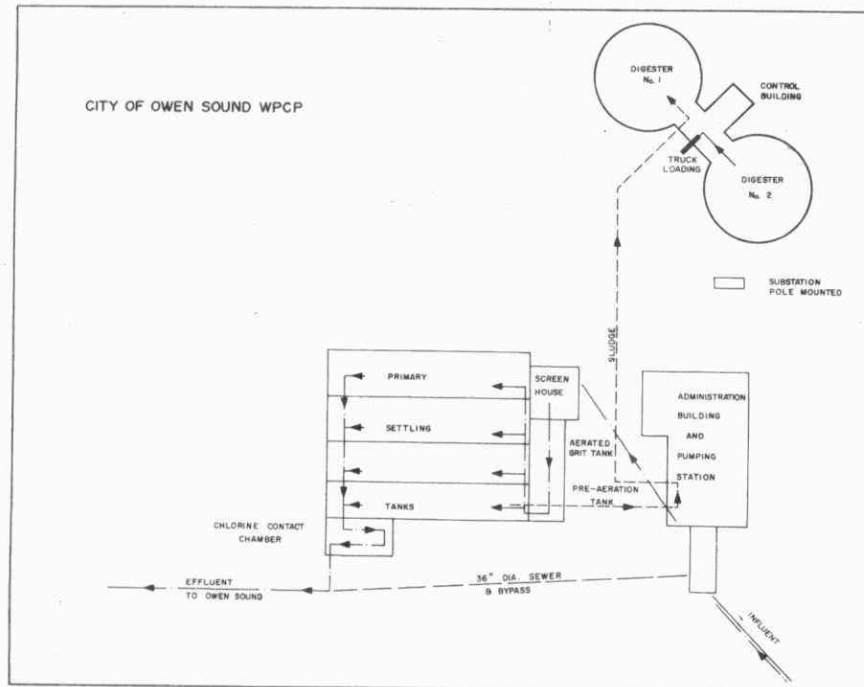
Type: PFT with one Sutorbilt
 compressor
 Size: One 40' dia x 25' swd (31,400
 cu ft or 0.196 mil gal)
 Loading: 2.75 lb/cu ft/mo

Secondary --

Size: One 40' dia x 24 1/2' swd (30,800
 cu ft or 0.192 mil gal)
 Total Loading: 1.88 lb/cu ft/mo

WEST SIDE PUMPING STATION

One - 3916 gpm Chicago Pump
 Two - 1000 gpm Smart-Turner
 Standby - Diesel generator

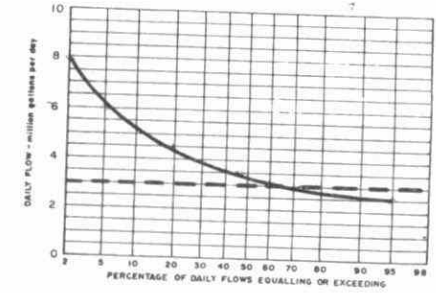
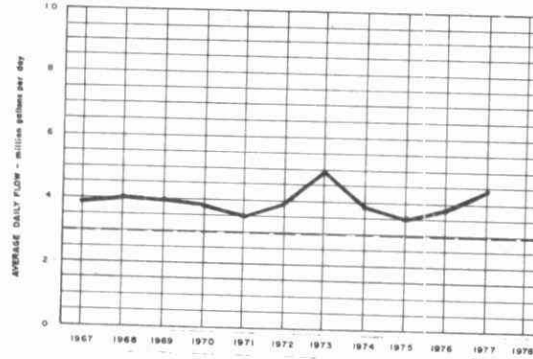


PLANT PERFORMANCE SEWAGE

OWEN SOUND WPCP

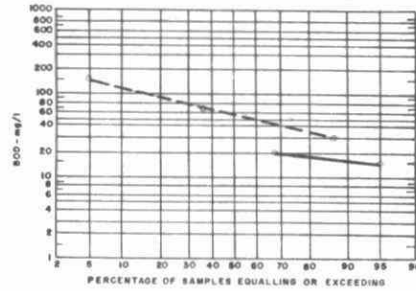
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mi. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	88	3.2	4.3	83	37	55	45	275	24	91	248	4.8	1.1
FEB	176	4.1	6.8	92	38	59	63	194	22	89	202	4.0	1.0
MAR	218	7.0	10.0	90	37	59	115	149	29	81	261	3.6	1.0
APR	148	4.9	8.3	64	41	36	34	122	28	77	139	3.3	1.1
MAY	115	3.7	5.9	102	33	68	80	175	19	89	180	6.3	1.0
JUNE	105	3.4	4.4	91	32	65	62	256	24	91	243	4.4	.7
JULY	114	3.6	6.4	90	31	65	67	248	27	89	252	5.6	.8
AUG	135	4.3	6.3	80	38	52	57	170	19	88	204	4.1	1.1
SEPT	95	4.3	5.8	162	35	78	162	259	32	87	293	4.7	1.2
OCT				83	39	53		184	19	88		2.5	.9
NOV				70	35	50		167	32	80		2.5	1.2
DEC								169	39	76			
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-
AVG		4.4	10.0	92	36	60	75	197	25	87	230	4.2	1.0
No. of Samples	-	-	-	21	21	-	-	73	73	-	-	21	21

PROCESS DATA FLOWS



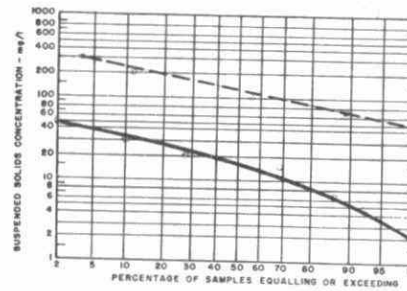
DESIGN CAPACITY -----

BOD₅

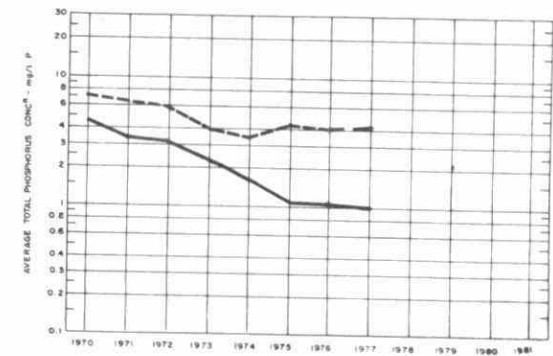
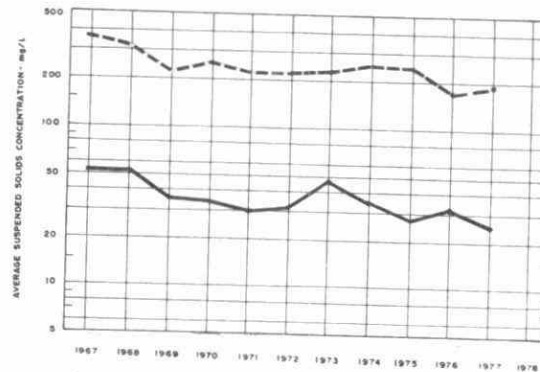
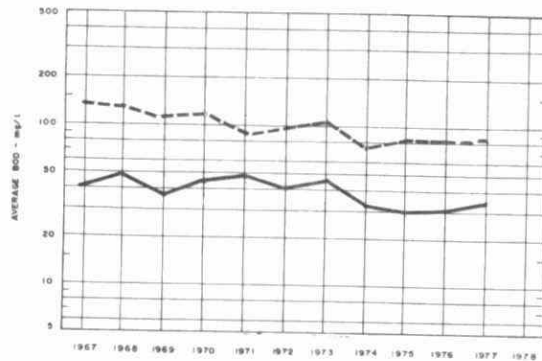
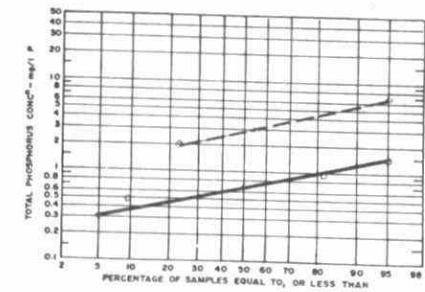


PLANT INFLUENT -----
PLANT EFFLUENT -----

Susp. Solids

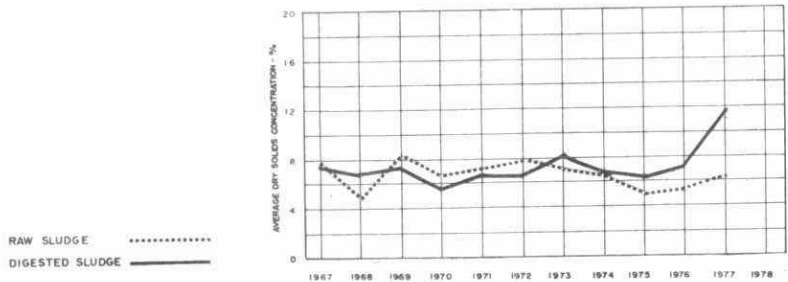
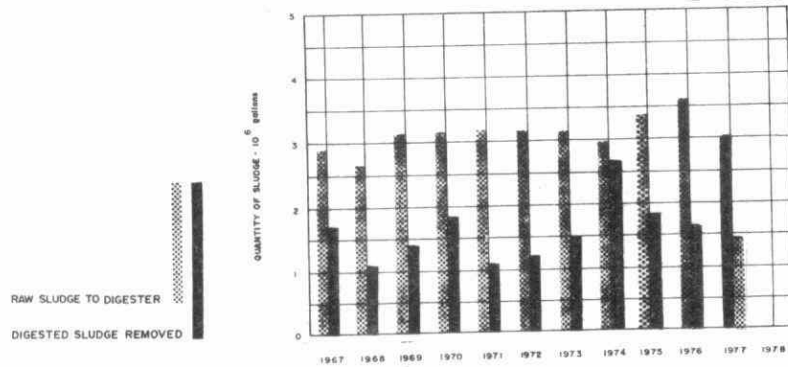


Phos.



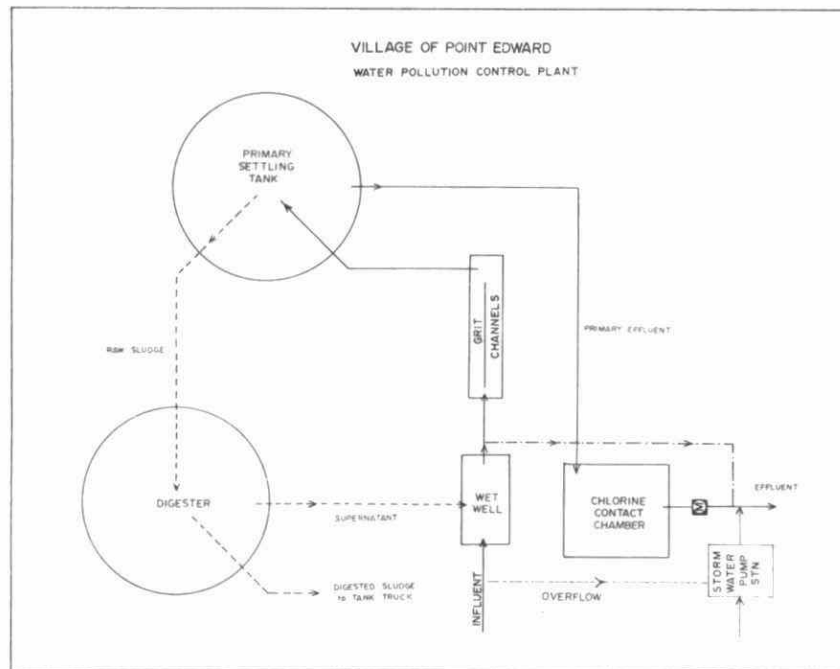
TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							SLUDGE HAULED cubic yards
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %		
JAN	42	3.4	3.9	216	4.3	57	178	8.2	37	.3	1056
FEB	58	3.1	2.6	252	3.6	56	109	9.0	40	.06	649
MAR	231	5.1	2.3	279	5.6	41	130	9.5	34	.2	770
APR	74	4.3	2.9	270	4.6	50	193	7.6	34		1144
MAY	60	4.3	3.7	279	4.5	60	93	7.7	40		550
JUNE	76	4.1	3.9	270	6.3	57	69	15.5	37	.1	407
JULY	116	4.4	3.8	279	4.2	50	26	16.3	35	.2	154
AUG	166	4.2	3.1	216	7.6	45					
SEPT	155	4.2	4.5	243	7.4	48	192	11.9	31		1136
OCT	76	4.6		261	4.6	37	338	13.8	33		2001
NOV	106	4.4		270	5.0	56	99	15.9	34	.2	586
DEC	81	4.4		279	4.2	57	45	13.6	35		286
TOTAL	1243	50.5	-	3114	-	-	1472	-	-	-	8719
AVG.	0.8 cubic feet/ml gal	7.2	4.2		5.1	51		11.7	35	.17	



DESIGN DATA

PROJECT	Village of Point Edward WPCP
PROJECT NO.	2-0036-59
TREATMENT	Primary
DESIGN FLOW	0.57 mgd
DESIGN POPULATION	5,700
BOD - Raw Sewage - Removal	170 mg/l 47%
SS - Raw Sewage - Removal	200 mg/l 60%



RAW SEWAGE PUMPS

Type: Fairbanks-Morse
Size: Two 1300 lgpm @ 35' tdh

PRIMARY TREATMENT

Screening

Type: Bar screens, manually cleaned
Size: Two; 1 1/2" spacing

Grit Removal

Type: Channels
Size: Two 16 X 1.75 X 2'
Retention: 0.88 min

Primary Sedimentation

Type: Dorr
Size: One 35' dia x 10' swd
(60,000 imp. gal)
Retention: 2.53 hr
Loading: Surface, 594 imp. gal/ft²/day
Weir, 5,190 imp. gal/ft/day

CHLORINATION

Type: BIF
Size: One 200 lb/day

Chlorine Contact Chamber

Size: One 20 X 10 X 8 1/2' (10,600 gal)
Retention: 27 min

OUTFALL

to St. Clair River

SLUDGE HANDLING

Digestion System - Single-stage

Type: Dorr; 2 draft tube mixers
Size: One 35' dia x 20' swd (19,200 cu ft or 119,808 gal)
Loading: 1.07 lb/cu ft/mo

PUMPING STATIONS

Storm Water

Type: Custom Built
Size: One 4700 gpm @ 20' tdh
Two 10000 gpm @ 20' tdh
with two 100 hp diesel standbys

Helena Street

Type: Smith & Loveless
package lift station
Size: Two 750 gpm @ 40' tdh

Michigan Avenue

Type: Smith & Loveless
package lift station
Size: Two 500 gpm @ 20' tdh

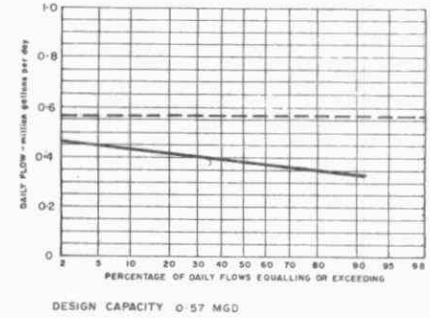
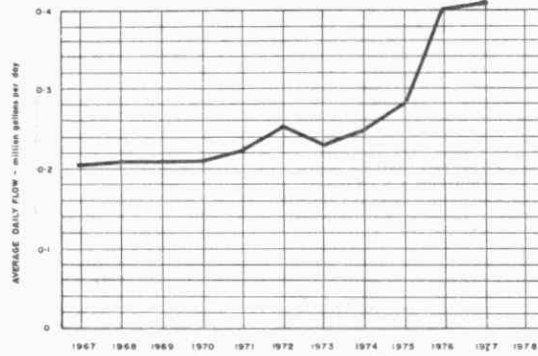
402 STATION (2-0193-63)
Type: Smith and Loveless
Package Lift Station
Size: Two 175 gpm @ 23' tdh

PLANT PERFORMANCE

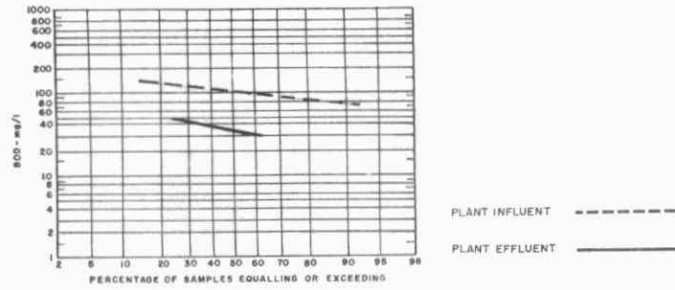
POINT EDWARD WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	12.3	.39	.52	170	80	53	11	304	44	86	32	18.0	3.8
FEB	11.4	.40	.53	132	65	51	7	108	24	78	9	6.0	1.5
MAR	13.5	.43	.54	140	60	57	10	183	47	74	18	9.4	2.5
APR	12.2	.40	.51	146	63	57	10	366	33	91	40	17.5	1.9
MAY	12.5	.40	.53	120	35	71	11	208	49	76	20	12.0	2.2
JUNE	12.7	.41	.54	108	94	13	1	76	25	67	6	6.3	1.3
JULY	12.9	.41	.54	110	44	60	9	221	54	76	22	10.0	2.8
AUG	13.2	.42	.56	143	48	66	13	351	57	83	39	16.9	2.5
SEPT	12.6	.42	.54	170	50	70	15	265	56	78	26	7.6	2.3
OCT	12.6	.40	.51	210	92	56	15	676	51	92	78	17.0	2.6
NOV	12.3	.40	.50	220	50	77	21	860	65	92	98	4.3	5.1
DEC	14.6	.44	.53	234	35	85	29	736	46	93	95	22.8	1.8
TOTAL	152.8	-	-	-	-	-	151	-	-	-	484	-	-
AVG.	-	.41	.52	159	60	60	13	363	46	82	40	12.3	2.5
No. of Samples	-	-	-	12	12	-	-	12	12	-	-	12	12

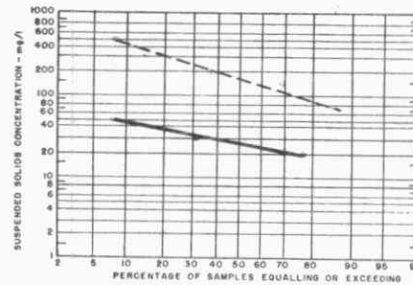
PROCESS DATA FLOWS



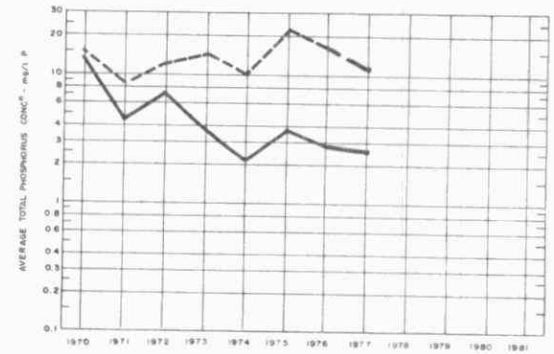
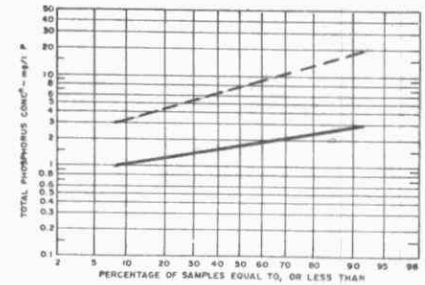
BOD₅



Susp. Solids



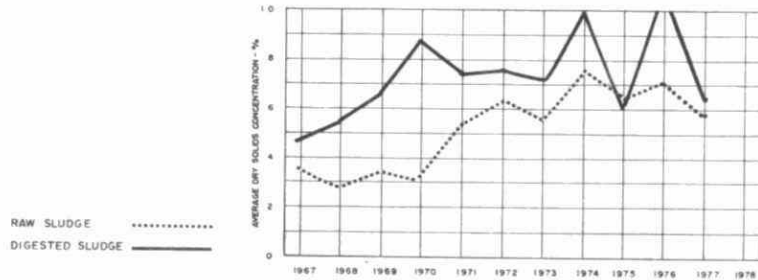
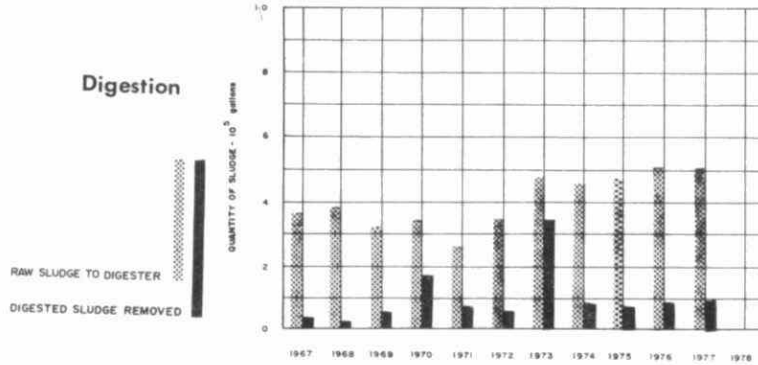
Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	SLUDGE HAULED cubic yards
				QUANTITY TOTAL SOLIDS 10 ³ gallons	%	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ⁵ gallons	%	%		
JAN	29	583	4.7	37	6.9	52	11.8	3.9	49	2.1	70
FEB	17	504	4.4	41			5.1				30
MAR	23	542	4.0	45			6.4				40
APR	19	574	4.7	44	7.2	56	5.1	16.1	46	2.5	30
MAY	25	503	4.0	45			6.8				40
JUNE	24	528	5.0	40			8.5				50
JULY	40	560	4.3	44	2.8	57	6.8	3.2	50		40
AUG	22	550	4.2	43			10.2				60
SEPT	13	522	4.1	42	3.3	37	6.8	4.9	52	.47	40
OCT	14	582	4.7	38			6.8				40
NOV	13	581	4.8	40	8.9	42	6.8	4.1	51	4.6	40
DEC	19	587	4.3	45			8.5				50
TOTAL	258	6616	-	504	-	-	89.6	-	-	-	530
AVG.	1.7 cubic feet/mil gal		4.4		5.8	49		6.4	50	2.4	

Digestion



REGION 2
West Central

PROJECT City of Nanticoke
Port Dover WPCP

PROJECT NO. 2-0115-62

TREATMENT Primary

DESIGN FLOW 2.1 mgd

DESIGN POPULATION 5,300

BOD - Raw Sewage 210 mg/l
- Removal 30%

SS - Raw Sewage 296 mg/l
- Removal 60%

RAW SEWAGE PUMPS

Type: Worthington
Size: One 800 gpm @ 24' tdh
One 500 gpm @ 24' tdh
Two 1750 gpm @ 25' tdh

PRIMARY TREATMENT

Grit Removal

Type: Aerated, mechanical grit
collector (Rex Chainbelt)
Size: One 20' x 10' x 11.85'
(14,750 gal)
Retention: 10 min

Air Supply

Type: Roots-Connersville
Size: One 55 cfm
One 65 cfm

Primary Sedimentation

Type: Rex Chainbelt
Size: Three 75' x 15' x 8'
(168,000 gal)
Retention: 1.93 hr
Loading: Surface, 620 gal/ft²/day
Weir, 46,500 gal/ft/day

CHLORINATION

F & P automatic

Chlorine Contact Chamber

Size: One 21 1/2' x 18' x 6 1/2'
(15,950 gal)
Retention: 11 min

OUTFALL

to Lake Erie

SLUDGE HANDLING

Aerated holding tank, one
20' x 15' x 8.2' (avg)
Size: 2,460 ft³ or 12,750 gal

Vacuum Filter

Type: Eimco (cloth)
Size: One 200 sq ft

PUMPS -- TYPE and SIZE

#1 Pumping Station (custom-built)

Type: Worthington
Size: Three 1750 gpm @ 66' tdh
(station has one Barminutor,
Model C)

#2 Pumping Station (prefabricated)

Type: Fairbanks-Morse
Size: Two 417 gpm @ 48' tdh

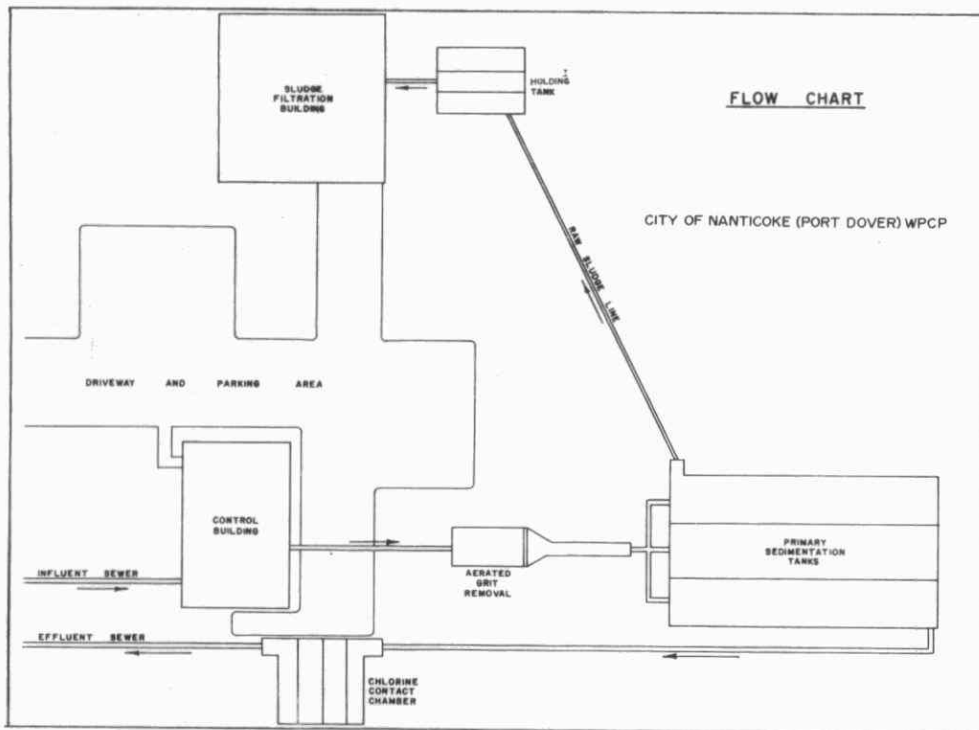
#3 Pumping Station (prefabricated)

Type: Fairbanks-Morse
Size: Two 207 gpm @ 65' tdh

#4 Pumping Station

Type: Flygt submersible
Size: Two 217 gpm @ 19' tdh

NOTE: Above pumping stations have
overflows to Lynn River



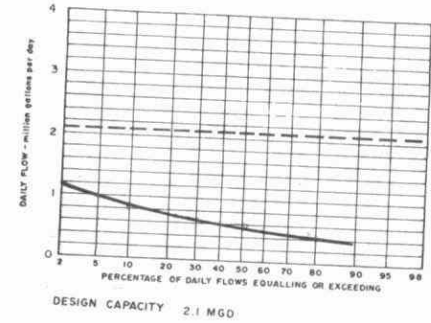
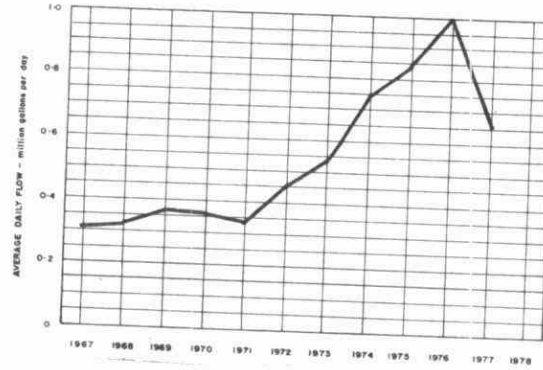
PLANT PERFORMANCE

SEWAGE

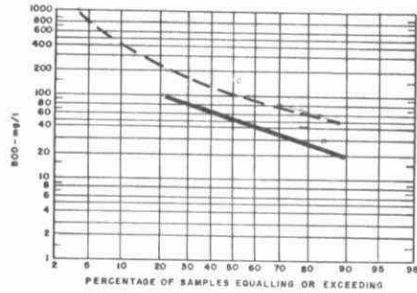
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l P	EFFLUENT mg/l P
						%	10 ³ pounds			%	10 ³ pounds		
JAN	15.1	.46	.60	105	35	67	10	233	24	90	32	4.3	0.1
FEB	14.2	.55	.80	86	32	63	8	496	338	32	22	4.5	0.2
MAR	24.0	.77	1.62	190	26	86	39	314	25	92	69	6.8	0.6
APR	25.1	.82	2.84	63	100	0	0	161	20	88	35	3.6	0.5
MAY	17.7	.57	.57	235	93	60	25	478	41	91	77	9.5	0.9
JUNE	18.4	.61	.61	231	47	80	34	316	30	91	52	8.3	1.1
JULY	23.4	.76	1.56	775	76	90	164	1451	64	96	32	26.6	1.0
AUG	20.3	.66	.99	640	118	82	106	1025	80	92	192	12.0	2.2
SEPT	25.1	.84	2.32	275	65	78	54	244	22	91	56	9.5	1.2
OCT	19.7	.63	.93	290	74	74	43	218	35	84	36	8.3	1.4
NOV	19.8	.66	.85	417				427				9.3	
DEC	19.9	.64	1.15	90	30	67	12	145	44	70	20	4.0	1.3
TOTAL	242.7	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	20.2	.66	MAXIMUM 2.84	292	64	78	46	472	74	84	80	9.1	0.9
No. of Samples	-	-	-	22	18	-	-	21	17	-	-	22	17

NANTICOKE (PORT DOVER) WPCP

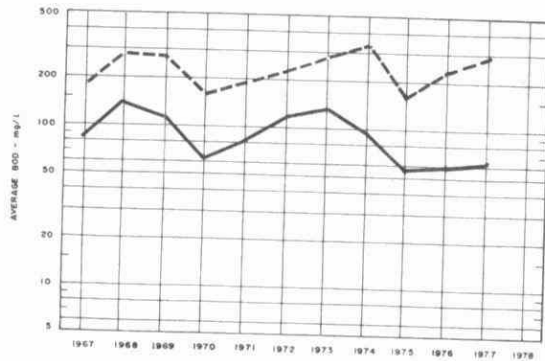
PROCESS I FLOWS



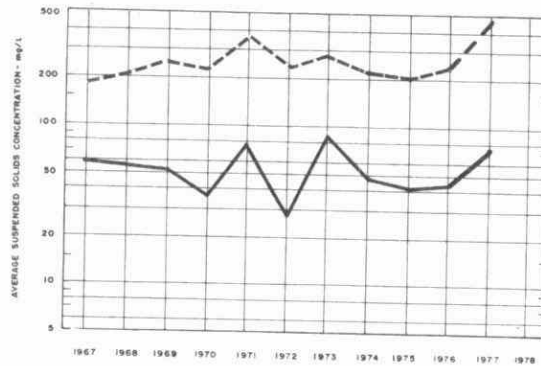
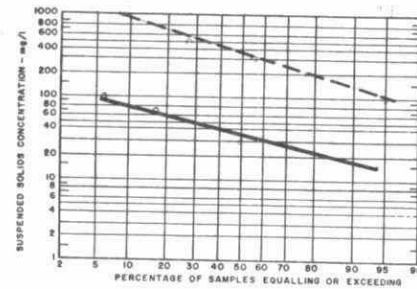
BOD₅



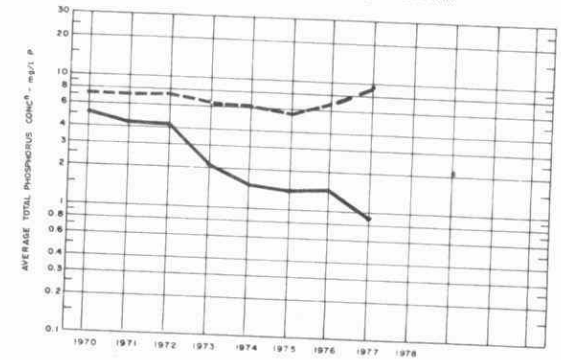
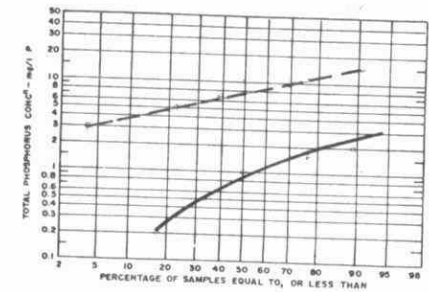
PLANT INFLUENT - - - -
PLANT EFFLUENT ————



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL								
		CL ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M	AIR 1000 ft ³ lb 800	RAW SLUDGE			DIGESTED SLUDGE			SUPER- NATANT T. S.	AMOUNT HAULED cubic yards	
									QUANTITY 10 gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 gallons	TOTAL SOLIDS %	VOL. SOLIDS %			
JAN	27											16					96
FEB	25											23					138
MAR	8											8					48
APR	65	.9*	6.7									0					0
MAY	95	1.3	7.2									85	8.0				504
JUNE		1.5	8.2									23	8.0				136
JULY	49	1.7	7.4									30					180
AUG	25	1.5	7.3									27	8.0				162
SEPT	50	1.9	7.6									15	8.0				90
OCT		.8**	7.2									47	7.9				276
NOV												28	7.8				168
DEC												21	3.0				126
TOTAL	344	9.6	-	-	-	-	-	-	-	-	-	323	-	-	-	-	1924
AVG.	1.4 <small>cu. ft/mo per</small>	1.4	6.4									27	7.2				160

* Started chl. 20th April
 ** Stopped Chl. 16th Oct.

REGION 3
Central

DESIGN DATA

PROJECT	Town of Midland WPCP
PROJECT NO.	2-0146-63
TREATMENT	Primary
DESIGN FLOW	1.25 mgd
DESIGN POPULATION	12,500
BOD - Raw Sewage	225 mg/l
- Removal	40%
SS - Raw Sewage	300 mg/l
- Removal	60%

PRIMARY TREATMENT

Comminution

Type: Barminutor
Size: One Model C

Grit Removal

Type: Dorr Detritor
Size: One 12' x 12' x 16"
(1,200 gal)
Retention: 1.38 min

Primary Sedimentation

Type: Dorr
Size: Two 50' dia x 8' swd
195,000 gal
Retention: 3.75 hours
Loading: Surface, 319 gal/ft²/day
Weir, 3970 gal/ft/day

CHLORINATION

Type: W & T, Type A711 (Auto)
Size: One 1000 lb/day

Chlorine Contact Chamber

Size: Irregular (16,200 gal)
Retention: 18.7 min

OUTFALL

615' of 24" pipe to Georgian Bay

SLUDGE HANDLING

Digestion System - Two Stage

Primary --
Type: Babcock-Wilson
Draft tube mixers (2)
Size: One 30' dia x 22' (15,600
cu ft or 97,200 gal)
Loading: 4.3 lb/cu ft/mo

Secondary --
Type: Fixed steel cover
Size: One 30' dia x 21½' (15,200
cu ft or 94,600 gal)
Total Loading: 2.2 lb/cu ft/mo

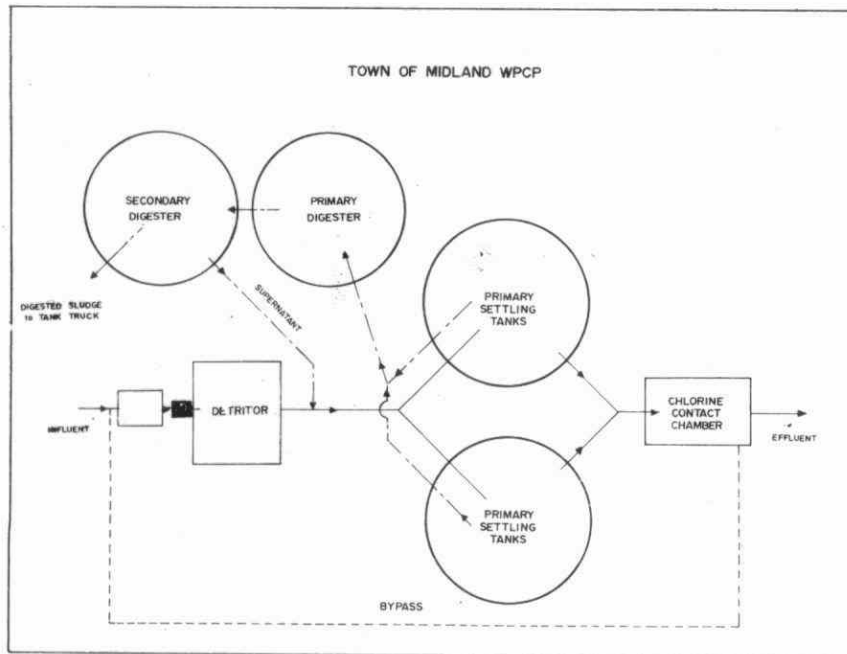
PUMPING STATIONS

#1 Pumping Station

Type: Worthington
Size: Two 780 gpm @ 37' tdh
One 2600 gpm @ 60' tdh

#2 Pumping Station

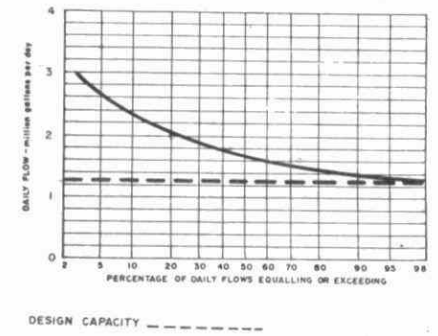
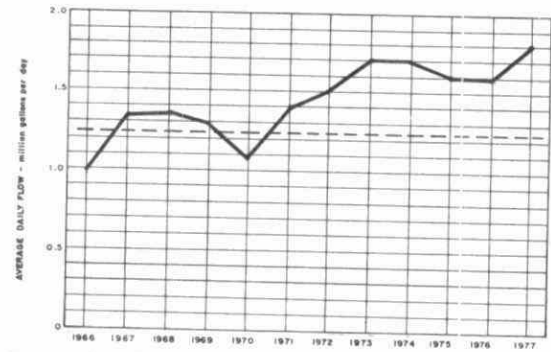
Type: Flygt (submersible)
Size: Two, each 190 gpm @ 30' tdh



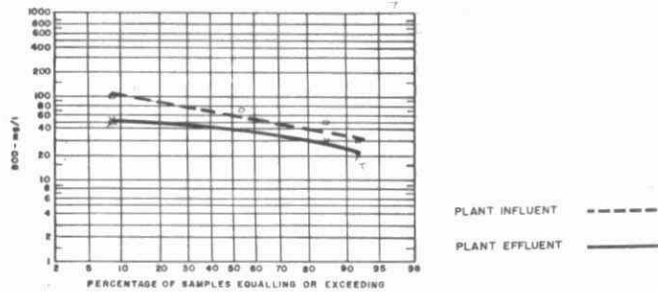
PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	47	1.5	1.7										
FEB	46	1.6	2.0	80	34	58	21	155	25	84	59	16.0	8.4
MAR	83	2.7	4.8	70	40	43	25	324	13	96	258	11.0	3.0
APR	60	2.0	3.0	85	24	72	36	100	15	85	51	9.1	5.0
MAY	52	1.7	2.0	65	32	51	17	177	17	90	83	12.0	3.8
JUNE	50	1.7	2.3	130	55	58	38	140	11	92	65	12.0	6.8
JULY	50	1.6	2.4	44	28	36	8	155	10	94	73	33.0	4.3
AUG	54	1.8	2.5	60	33	45	15	158	24	85	73	15.0	5.0
SEPT	54	1.8	2.6	70	40	43	16	234				16.0	7.4
OCT	60	2.0	2.7	68	30	56	23	186	20	89	100	17.0	6.1
NOV	57	1.9	2.8	80	34	58	26	130	15	88	66	11.0	1.7
DEC	51	1.6	2.5	80	40	50	20	100	21	79	40	4.5	1.9
TOTAL	664	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	55	1.8	4.8	74	35	53	22	168	18	89	83	14.3	4.9
No of Samples	-	-	-	12	12	-	-	12	11	-	-	12	12

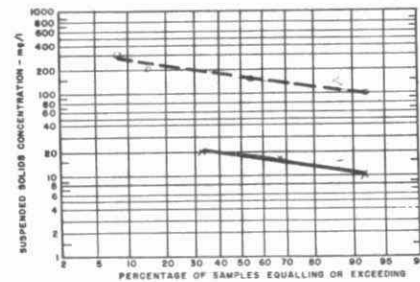
FLOWS



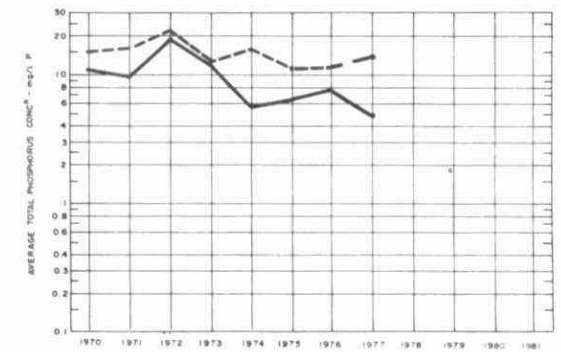
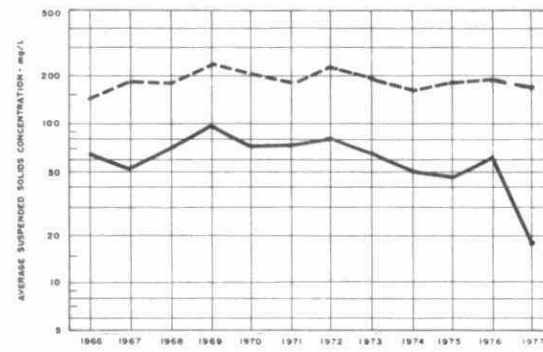
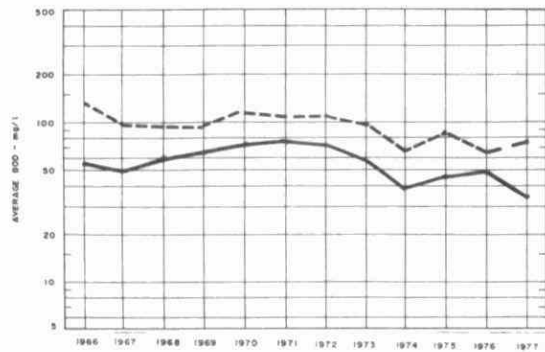
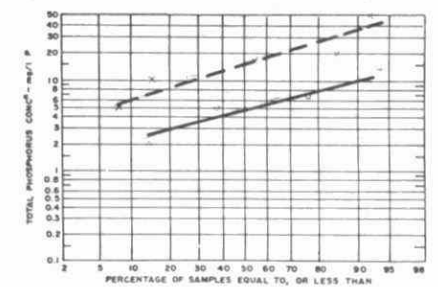
BOD₅



Susp. Solids

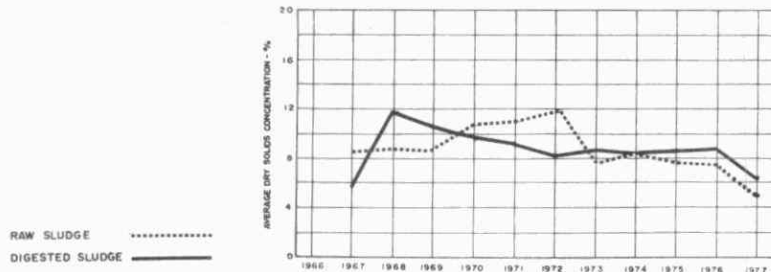
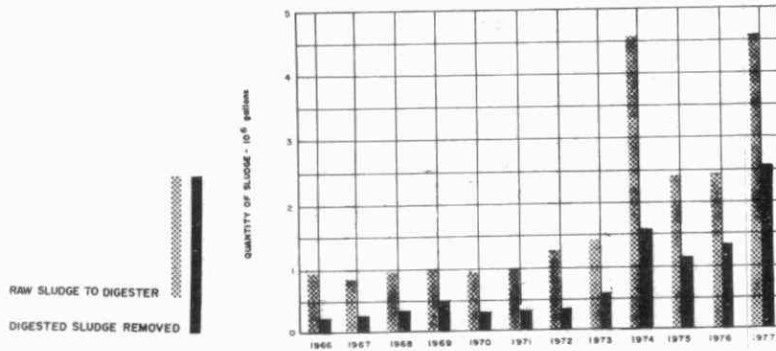


Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	SLUDGE HAUL ED cubic yards
				QUANTITY 10 ⁵ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %		
JAN	43	2.7	5.7	414			111				651
FEB	35	2.6	5.8	559	5.9	41	237	3.2	38	2.8	1407
MAR	182	3.7	4.4	499	5.0	38	290	4.9	37	2.4	1722
APR	73	2.8	4.6	366	4.1	40	237	6.1	33	0.6	1407
MAY	68	2.6	5.1	461	3.7	41	247	5.0	38	1.1	1470
JUNE	110	2.7	5.4	341	3.9	43	212	5.3		0.3	1260
JULY	288	2.4	4.7	310	4.9	43	223	4.8	34	0.3	1323
AUG	120	2.6	4.8	282	6.0	40	112	5.4		2.9	663
SEPT	56	2.5	4.5	371	5.5	33	312	6.3	32	3.4	1852
OCT	46	2.7	4.4	369	4.3	40	317	4.7		2.5	1882
NOV	43	2.7	4.7	456	5.3		157	5.1	36	0.2	935
DEC	18	2.4	4.8	204	5.0	53	165	6.6	33	0.3	980
TOTAL	1082	32.4	-	4632	-	-	2620	-	-	-	15552
AVG.	1.6 cubic feet/mil gal	2.7	4.9	386	4.9	41	218	5.2	35	1.5	1295



REGION 4
Southeastern

DESIGN DATA

PROJECT City of Cornwall WPCP
 PROJECT NO. 1-0001-66
 DESIGN FLOW 8.25 mgd
 DESIGN POPULATION 66,000

PRIMARY TREATMENT

Comminution

Type: Barminutor
 Size: Two Type "C"

Screening (Bypass channel)

Size: 2" spaces

Grit Removal

Type: Aerated; grit removed by clamshell bucket
 Size: Two 38' 6" x 15' 10" x 13' 5" swd (98,500 gal)
 Retention: 17 min

Air Supply

Type: Hoffman
 Size: Two 1,100 scfm (also for channel aeration)

Primary Sedimentation

Type: Jeffrey
 Size: Two 143' x 48' x 12' (1,245 mil gal)
 Retention: 3 hours
 Loading: Surface, 600 gal/ft²/day
 Weir, 14300 gal/ft/day

CHLORINATION

Chlorinator

Type: W & T
 Size: One 2,000 lb/day with evaporator

Chlorine Contact Chamber

Size: One 48' 7" x 26' 11" x 10' 6" (85,800 gal)
 Retention: 15 min

OUTFALL

- to St. Lawrence River

SLUDGE HANDLING

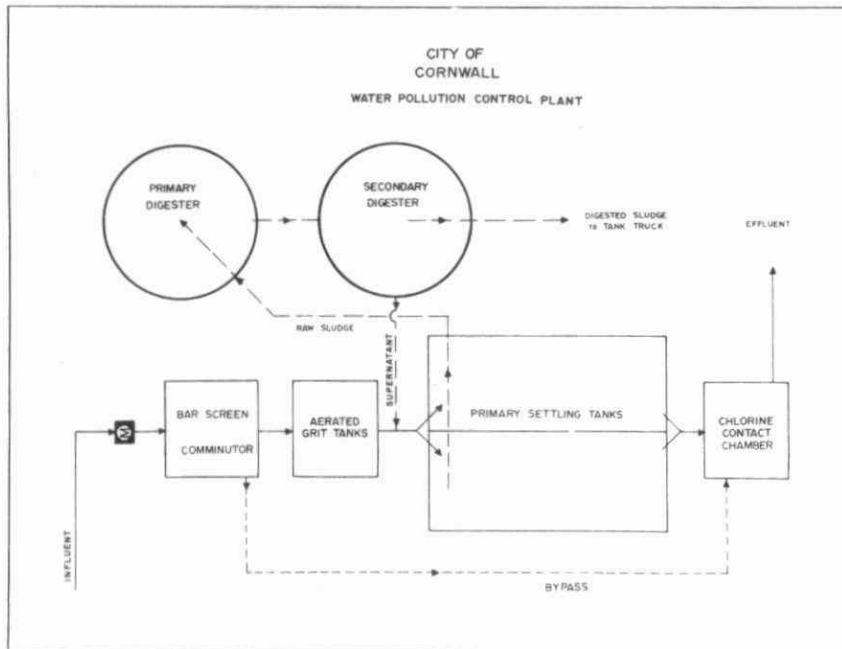
Digestion System - Two-stage

Primary Digester -
 Type: Perth (gas mixed) with fixed concrete cover
 Size: One 65' dia x 24' swd (82,500 cu ft or 0.515 mil gal)
 Loading: 2.88 lb/cu ft/mo

Secondary Digester -
 Size: One 65' dia x 24' swd (82,500 cu ft or 0.515 mil gal)
 Total Loading: 1.44 lb/cu ft/mo

Disposal

- by tank truck

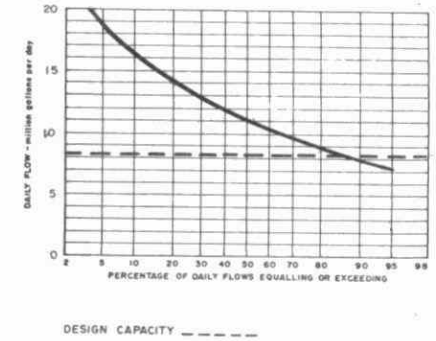
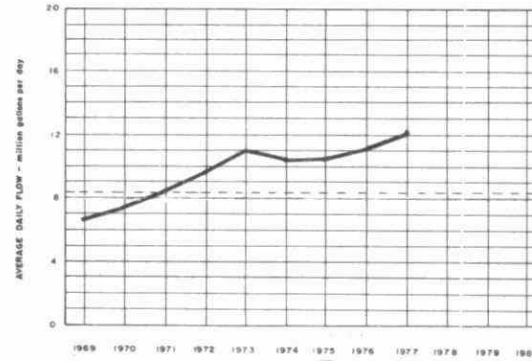


PLANT PERFORMANCE SEWAGE

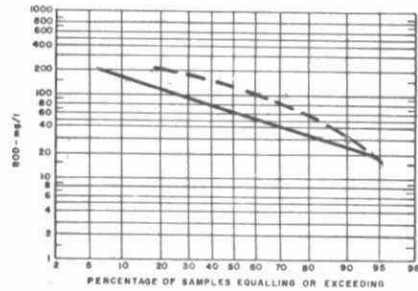
CORNWALL WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	235	7.6	12.2	285	60	79	530	202	102	50	235	2.6	1.4
FEB	229	8.2	14.2	107	240	0	0	107	126	0	0	1.8	2.2
MAR	474	15.3	20.0	118	110	7	33	347	205	41	673	4.5	4.0
APR	421	14.0	20.2	127	137	0	0	293	246	16	198	6.0	3.0
MAY	308	9.9	14.2	163	128	21	108	252	185	27	206	4.9	4.4
JUNE	317	10.5	14.5	180	88	51	291	121	84	31	117	5.4	5.1
JULY	348	11.2	18.1	160	120	25	139	481	450	6	108	5.3	4.4
AUG	403	12.9	18.4	130	120	8	45	207	155	25	235	7.3	6.9
SEPT	391	13.0	21.9	100	120	0	0	85	65	24	78	3.3	4.3
OCT	494	16.0	22.0	32	26	19	30	155	97	37	287	4.6	4.1
NOV	430	14.3	22.1	80	80	0	0	114	49	57	280	4.3	5.2
DEC	413	13.3	20.6	125	60	52	269	102	69	32	36	4.6	5.9
TOTAL	4511	-	-	-	-	-	992	-	-	-	2256	-	-
AVG	372	12.2	22.1	127	105	17	83	221	171	23	188	4.6	4.4
No. of Samples	-	-	-	20	17	-	-	52	49	-	-	53	49

PROCESS DATA FLOWS

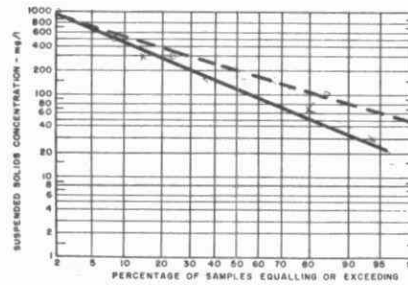


BOD₅

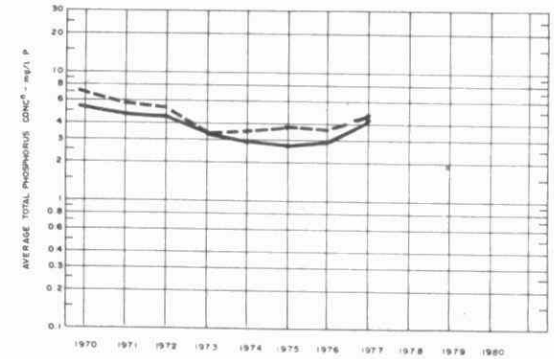
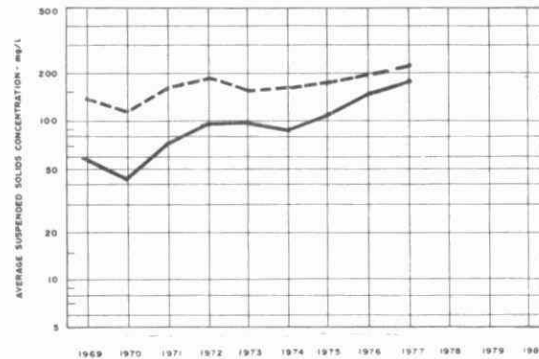
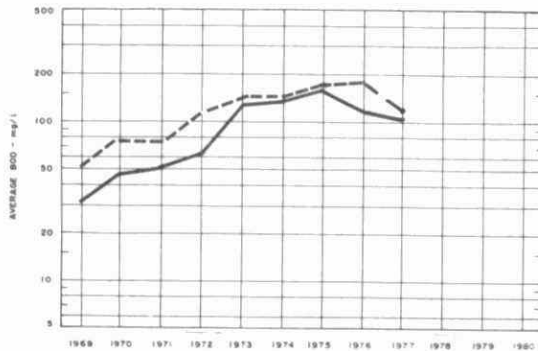
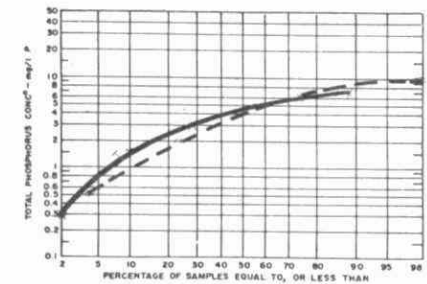


PLANT INFLUENT - - - -
PLANT EFFLUENT ————

Susp. Solids

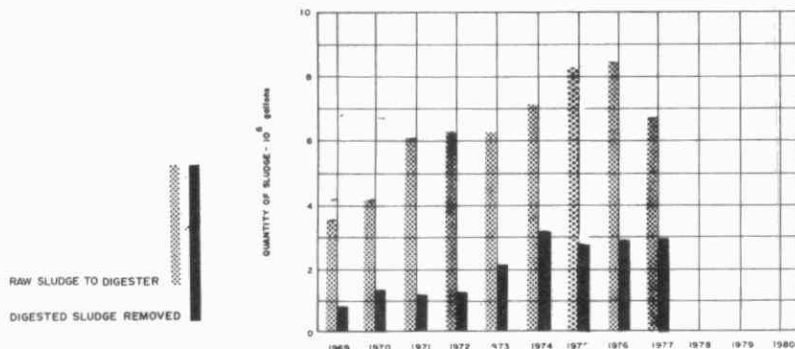


Phos.

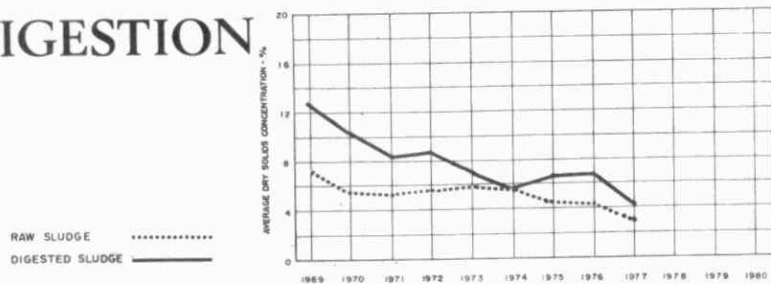


TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	SLUDGE HAULED cubic yards
				QUANTITY 10 ⁶ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ⁶ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %		
JAN	1296	27	11.3	.34	4.0	77	.16	2.9			943
FEB	0	19	8.4	.64	2.4	53	.16	2.9	46		920
MAR	648	25	5.2	.74	2.4	43	.17	4.6	48		1008
APR	1053	26	6.1	.62	3.9	69	.14	5.4			851
MAY	405	23	7.6	.63	2.8	73	.32	4.2			1921
JUNE	0	25	8.0	.70	5.0	59	.33	3.6			1955
JULY	0	25	7.2	.55	1.6	66	.32	2.9			2013
AUG	1620	26	5.8	.64	5.3	51	.32	6.8			1883
SEPT	0	27	6.8	.64	1.9	58	.78	7.3	49		4631
OCT	1620	27	5.5	.45	2.2	61	.03				191
NOV	0	26	6.1	.53	2.4	71	.15	2.3			915
DEC	0	26	6.3	.35	2.6	71	.09	2.4			546
TOTAL	6642	302	-	6.83	-	-	2.97	-	-	-	17777
AVG.	1.5 cubic feet/mil gal	25	6.7	.57	3.0	63	.25	4.1	48		1481



DIGESTION



DESIGN DATA

PROJECT Town of Prescott WPCP

PROJECT NO. 1-0023-66

TREATMENT Primary

DESIGN FLOW 1.0 MIGD

PRIMARY TREATMENT

Grit Removal

Type: Manually cleaned
Size: Two 26'2" x 3'9" x 3'4"
Flow Velocity: 1.0 fps

Screening

Type: Manually cleaned
Size: 1" openings

Comminution

Type: Worthington #15-5

Primary Sedimentation

Type: Dorr-Oliver
Size: Two 35' dia x 9' swd.
(108,000 I. gals. total)
Retention: 2 1/2 hours
Loading: Surface 1,000 I. gals/
ft²/day
Weir, 10,000 I. gals/
ft/day

CFEORINATION

Type: Wallace & Tiernan A-831
Size: Two 50 lbs/day each

Chlorine Contact Chamber

Size: 33,800 gal.
Retention: 30 minutes

OUTFALL

1650' 42" dia. concrete pipe to
St. Lawrence River

SLUDGE HANDLING

Digestion System

Type: Single stage
Size: 35' dia x 18' swd (150,000 I. G.)
Loading: 1.6 lb/ft³/mo.
Recirculation Pump: Smart Turner

PUMPING STATION

a) West Street

Two Smart-Turner, each 870 IGPM @ 36' tdh

b) East Street

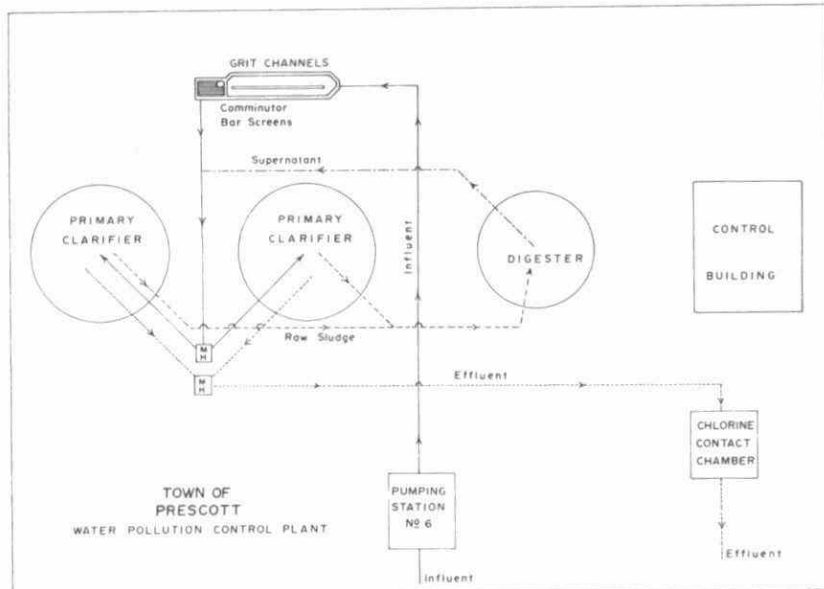
Two Smart-Turner, each 1410 IGPM @ 44' tdh

c) Highway 2 & Keefer Street

Two Smart-Turner, each 2100 IGPM @ 76' tdh

d) Plant Site

Two Smart-Turner 1400 IGPM @ 33' TDH
One Marathon variable speed

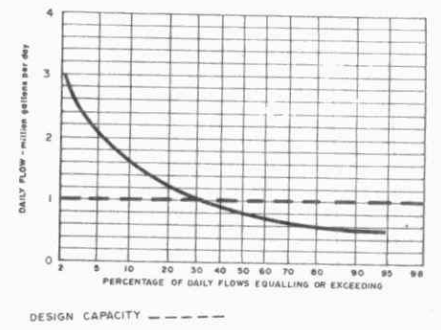
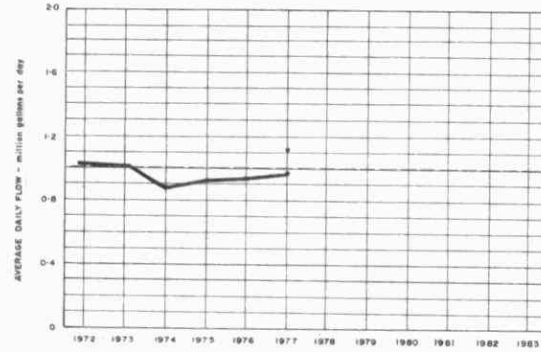


PLANT PERFORMANCE

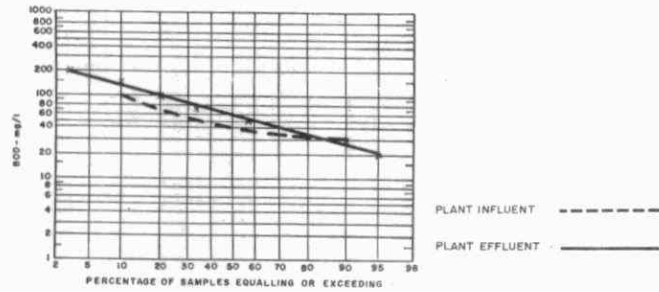
PRESCOTT WPCP

FLOWS

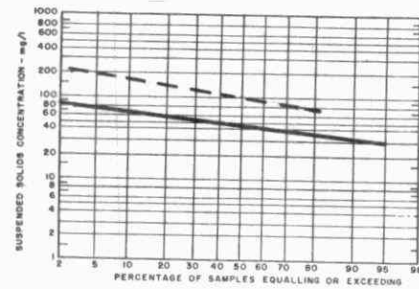
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	20.0	.60	.68	70	45	36	5.0	85	47	45	7.6	6.5	1.5
FEB	21.6	.77	1.13	100	35	65	14.0	138	44	68	20.3	5.5	1.6
MAR	60.2	1.94	3.01	28	25	11	1.8	67	61	9	3.6	2.1	1.7
APR	36.5	1.26	1.23	47	38	19	3.3	58	37	36	7.7	1.9	1.1
MAY	22.7	.73	.95	73	51	30	5.0	122	62	49	13.6	2.7	1.6
JUNE	17.8	.59	.69	49	42	14	1.2	117	90	23	4.8	4.1	2.1
JULY	16.1	.58	.66	55	24	56	5.0	153	51	67	16.4	3.7	1.6
AUG	25.0	.90	1.70	40	39	3	.3	83	50	40	9.2	3.4	1.3
SEPT	25.9	.83	1.29	44	20	50	5.7	150	40	73	28.4	3.5	.9
OCT	34.9	1.12	1.73	21	21	0	0	54	35	35	6.6	1.3	.7
NOV	31.6	1.05	1.30	52	33	37	6.0	150	35	77	36.3	4.0	1.1
DEC	34.4	1.15	2.11	58	35	40	7.9	103	43	58	20.7	2.6	1.2
TOTAL	349.7	-	-	-	-	-	73.4	-	-	-	199.3	-	-
AVG	29.1	.96	MAXIMUM 3.01	56	35	38	6.1	107	50	53	16.6	3.5	1.3
No. of Samples	-	-	-	40	40	-	-	39	39	-	-	38	39



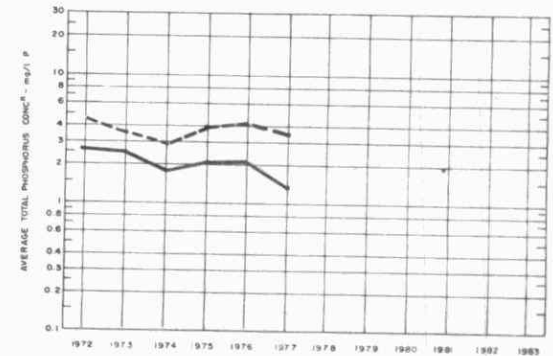
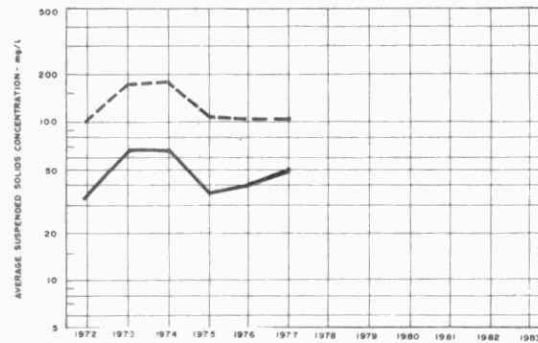
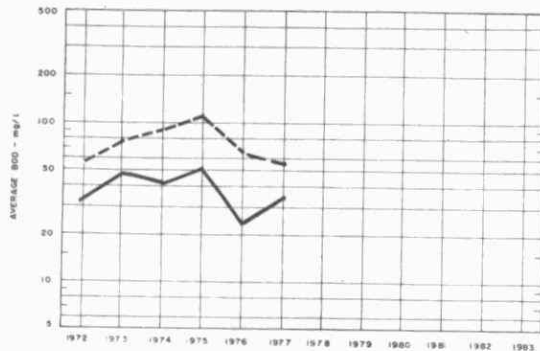
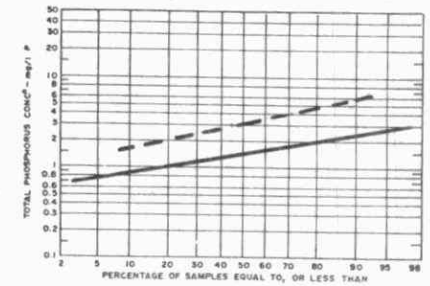
BOD₅



Susp. Solids



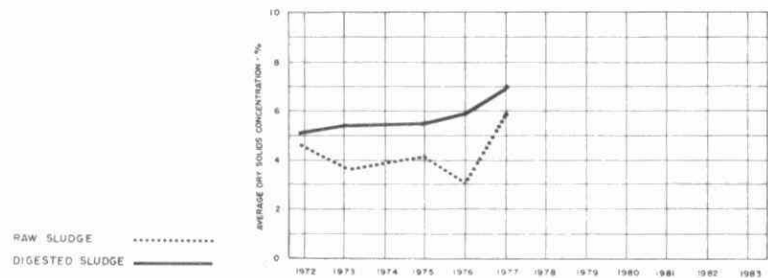
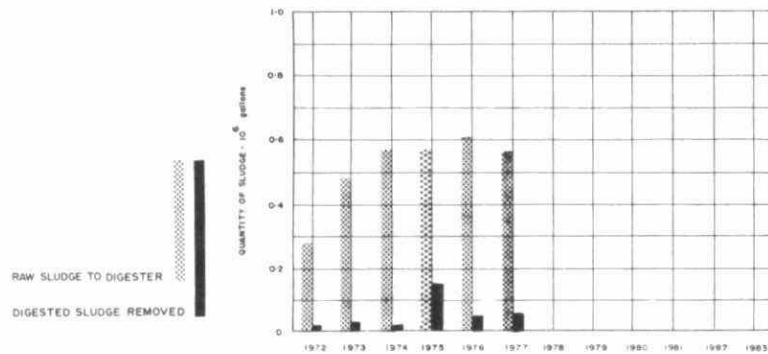
Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL								
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	SLUDGE HAULED cubic yards	
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %			
JAN	19	.9	4.7	51.1	2.9	61	1.7					10
FEB	13	.9	4.2	44.7	5.4	52	5.0	9.5	44	.4		30
MAR	21	1.9	3.1	47.7	2.6		5.1	12.1		1.4		30
APR	20	1.6	4.3	44.2	8.4		1.7	8.1		.4		10
MAY	16	1.1	4.8	49.2	5.0			10.3		1.1		
JUNE	18	.8	4.8	44.1	6.7		5.9	9.3		1.8		35
JULY	18	.7	4.3	44.4	10.1		4.0	6.0		.4		24
AUG	18	.9	3.2	52.2	6.1	51	8.0	9.0	30	2.4		47
SEPT	16	1.1	4.4	58.7	4.9		4.0			.3		24
OCT	17	1.2	3.4	46.7	6.5	20	4.0	9.8	30	.2		24
NOV	16	1.0	3.1	40.5	6.3		6.0	7.3		.6		36
DEC	14	1.0	3.0	41.6	5.6		4.0	8.5				24
TOTAL	206	13.1	-	565.1	-	-	49.4	-	-	-		294
AVG.	.6 cubic feet/ml gal	1.1	3.7	47.1	5.9	46	4.1	9.0	35	.9		25

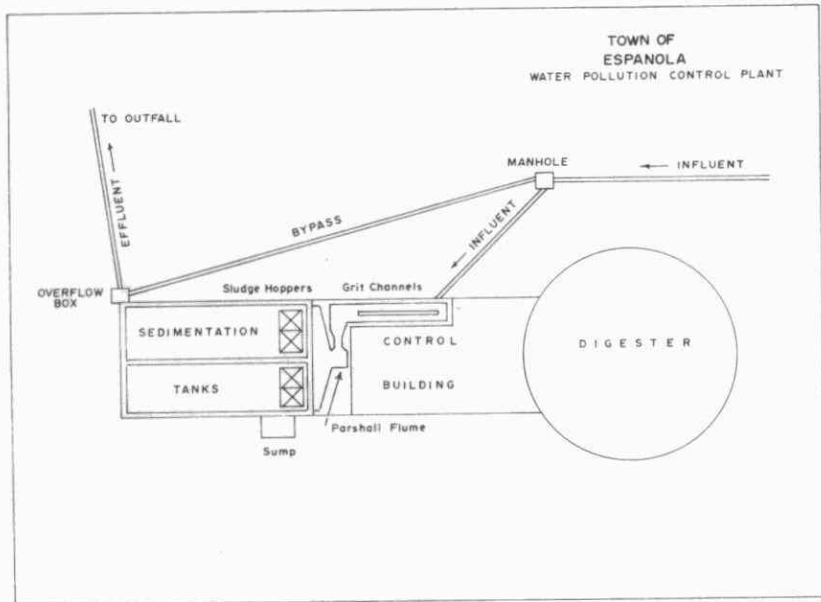
Digestion



REGION 5
Northeastern

DESIGN DATA

PROJECT NAME	Town of Espanola WPCP
PROJECT NO.	2-0074-61 <u>SCREENING</u>
TREATMENT	Primary 2 manually cleaned bar screens
DESIGN FLOW	0.66 mgd <u>GRIT REMOVAL</u>
	Two channels - 14'6" x 1.5' x 1.07' (liq. depth) Flow Velocity - 1.0 fps
	<u>PRIMARY SEDIMENTATION</u>
	Size: Two 36' x 12' x 10' Volume: 8640 ft ³ or 54,000 gal. Detention: 1.95 hours Loading: Surface 773 gpd/ft ²
	<u>OUTFALL</u>
	Spanish River
	<u>SLUDGE DISPOSAL</u>
	Single stage digestion, fixed roof Size: One 35' dia. x 19.4' swd Volume: 18,700 ft ³ or 116,000 gal.



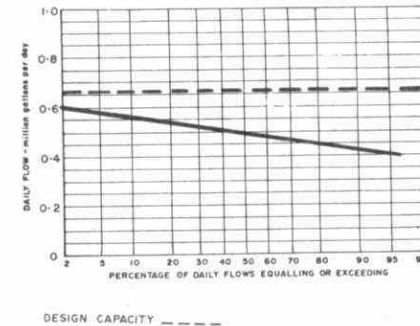
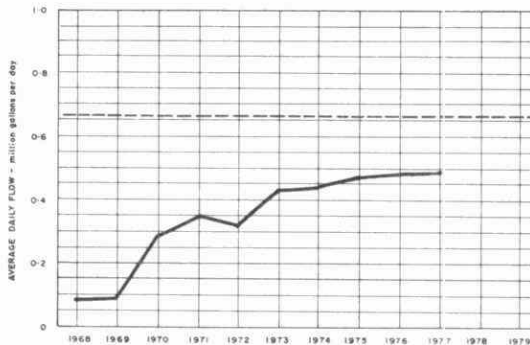
PLANT PERFORMANCE

SEWAGE

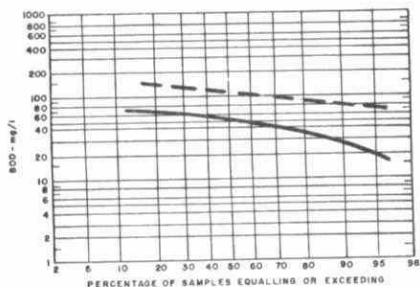
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION % 10 ³ pounds		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION % 10 ³ pounds		INFLUENT mg/l P	EFFLUENT mg/l P
JAN	14.3	.46	.51	115	58	50	8.2	158	40	75	17	6.4	3.9
FEB	12.2	.44	.49	130	73	44	7.0	154	54	65	12	6.9	4.8
MAR	16.0	.52	.87	135	55	69	17.6	250	45	87	45	6.6	4.3
APR	14.4	.48	.53	105	19	82	12.4	158	36	77	18	5.8	3.9
MAY	15.0	.48	.55	100	41	59	8.9	149	41	72	16	7.1	4.5
JUNE	15.0	.50	.59	135	41	70	14.2	146	59	60	13	5.9	3.9
JULY	15.8	.51	.58	110	28	75	13.0	145	36	75	17	5.2	4.0
AUG	15.5	.50	.64	105	45	57	9.3	151	61	60	14	6.8	2.8
SEPT	15.1	.50	.60	90	44	51	6.9	155	47	70	16	5.3	3.7
OCT	13.8	.44	.59	112	61	46	7.0	187	50	73	19	7.3	5.2
NOV	13.6	.45	.54	81	60	26	2.9	128	109	15	2	5.4	4.9
DEC	13.7	.44	.53	95	40	58	7.5	140	30	79	15	6.6	4.5
TOTAL	174.4	-	-	-	-	-	109.8	-	-	-	197	-	-
AVG	14.5	.48	MAXIMUM .87	110	47	57	9.1	162	49	70	16	6.3	4.2
No. of Samples	-	-	-	25	24	-	-	25	24	-	-	25	24

ESPANOLA WPCP

PROCESS DATA
FLOWS

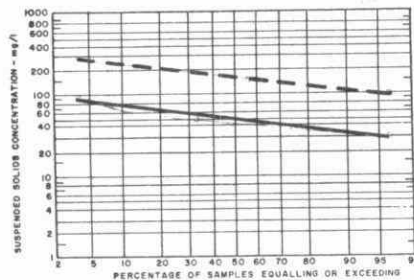


BOD₅

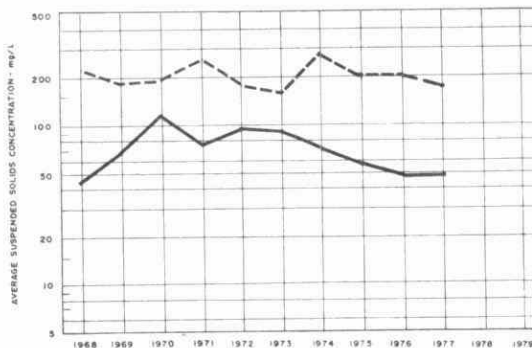
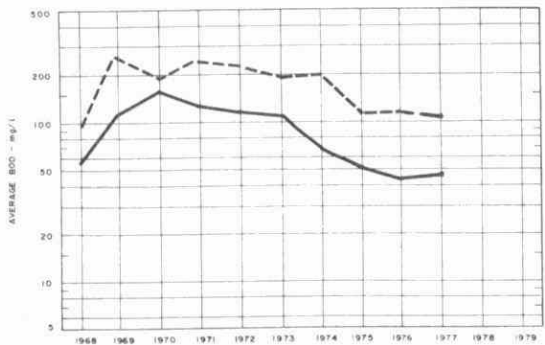
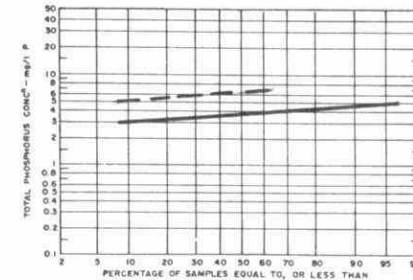


PLANT INFLUENT: - - -
PLANT EFFLUENT: ———

Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT	SLUDGE HAULED cubic yards
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	TOTAL SOLIDS %	
JAN	15			74	2.1	86	25	3.6	59	.7	91
FEB	14			67	1.9			3.8		.6	
MAR	22			74	2.0		15	3.1	57	.8	91
APR	15			72	2.8			4.8		.6	
MAY	14	431	5.8	58	3.1			4.4		.3	
JUNE	16	804	5.4	72	3.1		20	4.2	53	.05	118
JULY	18	894	5.7	74	4.5			4.2		.06	
AUG	22	735	4.7	74	3.1		23	6.7			136
SEPT	27	739	4.9	72	3.9			5.6		.08	
OCT	25	538	5.3	74	3.5			5.0		.07	
NOV	21			72	2.9		24	3.2		.5	145
DEC	18			74	1.9			4.5		.06	
TOTAL	227	4141	-	857	-	-	97	-	-	-	581
AVG.	1.3 cubic feet/mil gal	690	5.0	71	2.9	86		4.4	56	.3	

DESIGN DATA

PROJECT City of Timmins WPCP

PROJECT NO. 2-0071-60

TREATMENT Primary

DESIGN FLOW 3.0 mgd

DESIGN POPULATION 30,000

BOD - Raw Sewage 180 mg/l
- Removal 35-40%

SS - Raw Sewage 200 mg/l
- Removal 60-65%

RAW SEWAGE PUMPS

Screening

Type: Manually Cleaned
Size: 1 3/4" openings

Pumps

Type: Worthington
Size: One 3650 gpm @ 26' tdh
One 3120 gpm @ 26' tdh
One 3120 gpm @ 26' tdh (diesel)

PRIMARY TREATMENT

Comminution

Type: Chicago Pump Barminutor
Size: One Model C (36')

Grit Removal

Type: Aerated
Size: One 13' x 18 3/4' x 12 1/2'
(19,000 gal)
Retention: 9.1 min
Air Supply: Two Satorbilt

Primary Sedimentation

Type: Jeffrey
Size: Two 125' x 20' x 12' (avg)
(374,000 gal)
Retention: 3.0 hr
Loading: Surface, 600 gal/ft²/day
Weir, 9900 gal/ft/day

CHLORINATION

Type: F & P
Size: One 200 lb/day

Chlorine Contact Chamber

Size: Two 47 1/2' x 7' x 9'7"
(37,400 gal)
Retention: 19 min

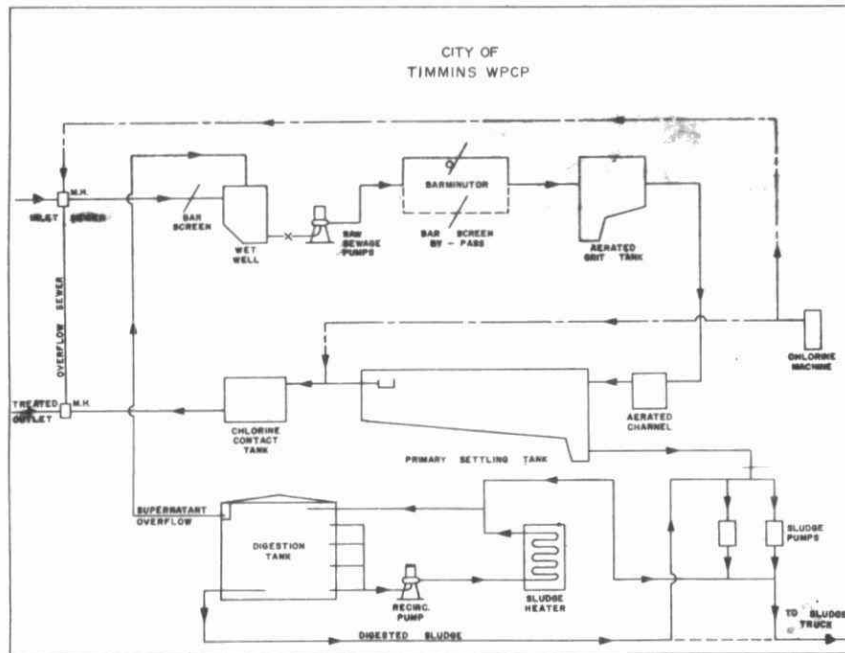
OUTFALL

To Mattagami River

SLUDGE HANDLING

Digestion System - single-stage,
concrete

Type: PFT (gas mixed)
Size: One 65' dia x 24' swd (80,000
cu ft or 0.50 mil gal)
Loading: 1.35 lb/cu ft/mo

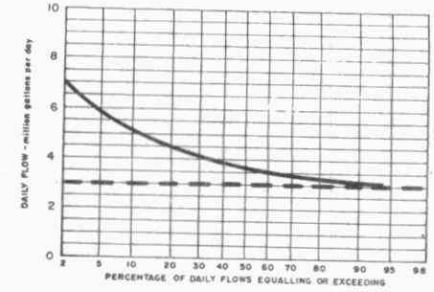


PLANT PERFORMANCE

TIMMINS WPCP

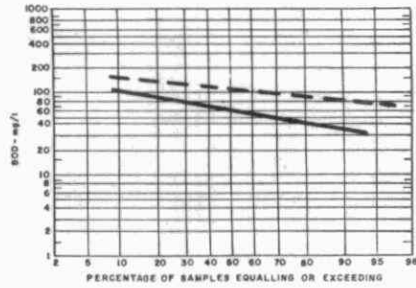
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	101	3.2	4.3	130	83	36	46	249	67	73	184	7.2	6.7
FEB	94	3.4	4.1	115	43	63	67	288	75	74	200	7.8	2.7
MAR	175	5.6	8.8	75	55	27	35	194	69	64	219	5.4	3.7
APR	162	5.4	6.4	97	73	25	39	265	90	66	284	5.4	5.6
MAY	124	4.0	5.0	103	70	32	41	163	85	48	97	6.7	4.6
JUNE	117	3.9	4.4	108	40	63	79	283	81	71	236	6.8	2.9
JULY	115	3.7	4.8	80	50	38	34	191	77	60	131	7.6	4.5
AUG	117	3.8	4.9	125	43	66	96	253	105	58	173	7.6	4.2
SEPT	123	4.1	5.1	110	49	55	75	226	74	67	186	6.9	4.2
OCT	142	4.6	5.4	125	90	28	50	90	76	62	174	7.3	6.0
NOV	125	4.2	5.0	130	93	28	46	194	51	74	178	6.0	4.2
DEC	124	4.0	4.8	100	34	66	82	1032	53	95	1218	6.2	2.4
TOTAL	1519	-	-	-	-	-	744	-	-	-	2552	-	-
AVG.	127	4.2	MAXIMUM 8.8	111	62	44	62	245	77	69	212	6.8	2.3
No. of Samples	-	-	-	24	24	-	-	66	64	-	-	24	23

PROCESS DATA FLOWS

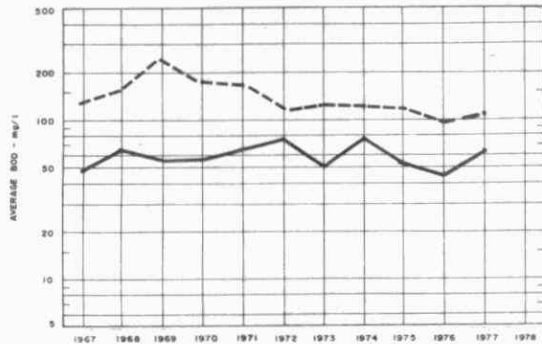


DESIGN CAPACITY -----

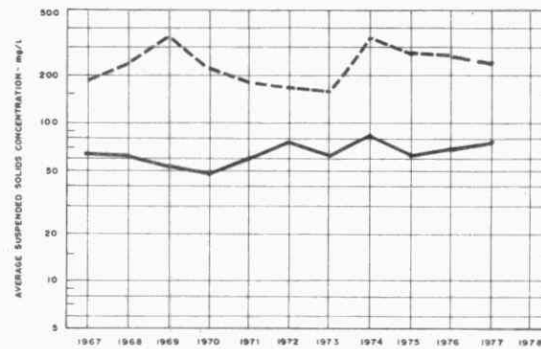
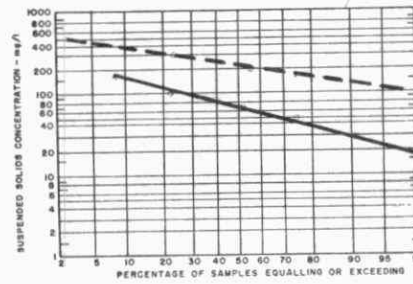
BOD₅



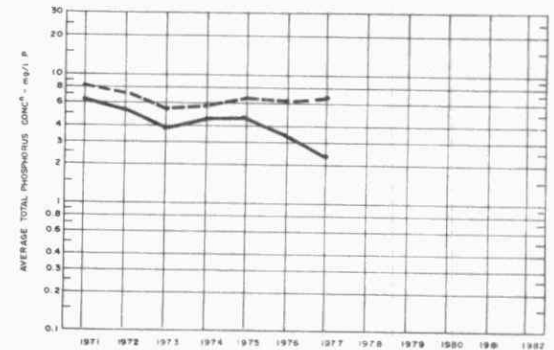
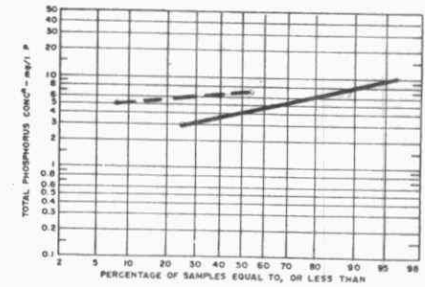
PLANT INFLUENT -----
PLANT EFFLUENT -----



Susp. Solids



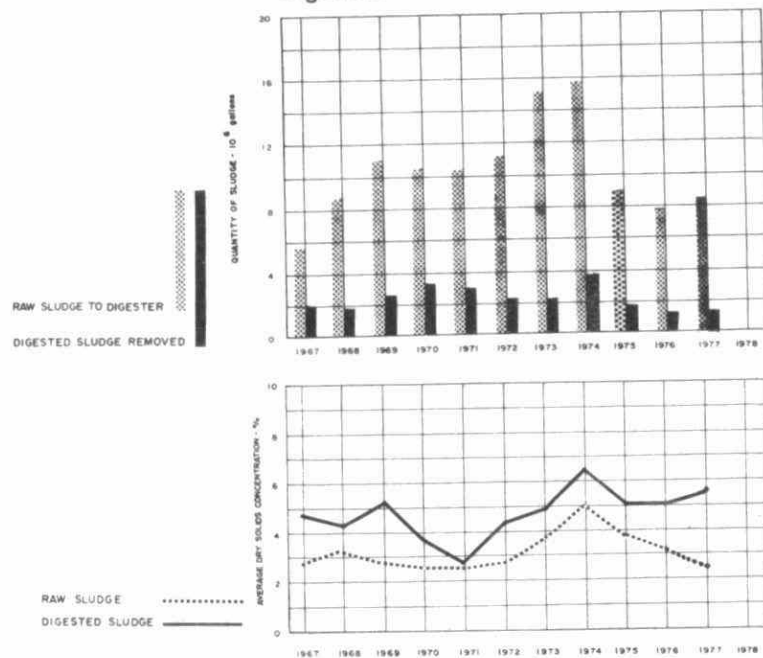
Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	SLUDGE HAULED cubic yards
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %		
JAN	156	4.6	4.6	368	2.4	78	135	5.4	49	.06	803
FEB	186	4.2	4.5	517	2.2	78	34	5.3	52	.08	201
MAR	729	4.5	2.6	754	3.8	54	199	5.7	52	.05	1180
APR	470	4.4	2.7	683	1.6	59	148	5.4	59	.07	879
MAY	237	4.4	3.5	720	2.4	66	93	4.4	50	.07	552
JUNE	316	3.9	3.3	733	2.4	70	68	5.4	49	.07	402
JULY	395	3.9	3.3	810	2.1	73	131	6.0	50	.3	778
AUG	363	3.6	3.1	623	2.3	59	68	6.4	45	.08	402
SEPT	394	3.9	3.2	794	2.3	65	118	6.7	44	.1	703
OCT	335	4.2	2.9	847	2.5	74	118	5.7	51	.1	703
NOV	197	3.9	3.1	814	2.3	80	47	5.7	51	.08	279
DEC	355	3.7	3.0	815	2.5	71	68	4.8	48	.1	402
TOTAL	4133	49.2	-	8478	-	-	1227	-	-	-	7281
AVG	2.7 cubic feet/ml gal	4.1	3.2	707	2.4	69	102	5.6	50	.10	607

Digestion



DESIGN DATA

PROJECT Town of Parry Sound
WPCP
PROJECT NO. 2-0113-62
TREATMENT Primary
DESIGN FLOW 0.83 mgd
DESIGN POPULATION 7,500
BOD - Raw Sewage 250 mg/l
- Removal 35%
SS - Raw Sewage 200 mg/l
- Removal 35%

PRIMARY TREATMENT

Comminution

Type: Barminutor
Size: One Model C (18")

Grit Removal

Type: Dorr Detritor
Size: One 10 X 10 X 14"
Retention: 1.35 min

Primary Sedimentation

Type: Dorr
Size: Two 30' x 30' x 10' swd
(112,000 gallons)
Retention: 3.24 hr
Loading: Surface, 460 gal/ft²/day
Weir, 3700 gal/ft/day

CHLORINATION

Type: W & T, Type A-731
Size: One 200 lb/day

Chlorine Contact Chamber

Size: One 25 1/4 X 8 1/2 X 8'
(11,150 gal)
Retention: 19.2 min

OUTFALL

- to McCurry Lake

SLUDGE HANDLING

Digestion System - single-stage

Type: Dorr draft tubes (2)
Size: One 35' dia x 20' 9" swd
(20,580 cu ft or 138,000 gal)
Loading: 0.85 lb/cu ft/mo

#5: Cascade Street P.S.

Type: Robert Morse (Weinman)
Size: Two, 210 usgpm at 41' tdh

#6: Seguin Street P.S.

Type: Fairbanks Morse
Size: Two, 1040 usgpm at 160' tdh

#7: Bay Street P.S.

Type: Flygt CP-3100
Size: One, 340 usgpm at 35' tdh

#8: St. Charles Crossing P.S.

Type: Smith & Loveless
Ejector Station
Size: One, 50 usgpm at 25' tdh

#9: Prospect St. P.S.

Type: Submersible
Size: Two, 275 gpm

#10: Waubeek St. P.S.

Type: Flygt submersible
Size: Two, 200 gpm

#11: Beaver Street P.S.

Type: Flygt submersible
Size: Two, 400 gpm

PUMPING STATIONS

#1: River Street P.S.

Type: Flygt CP-3100
Size: Two 100, usgpm at 25' tdh

#2: Birch Street P.S.

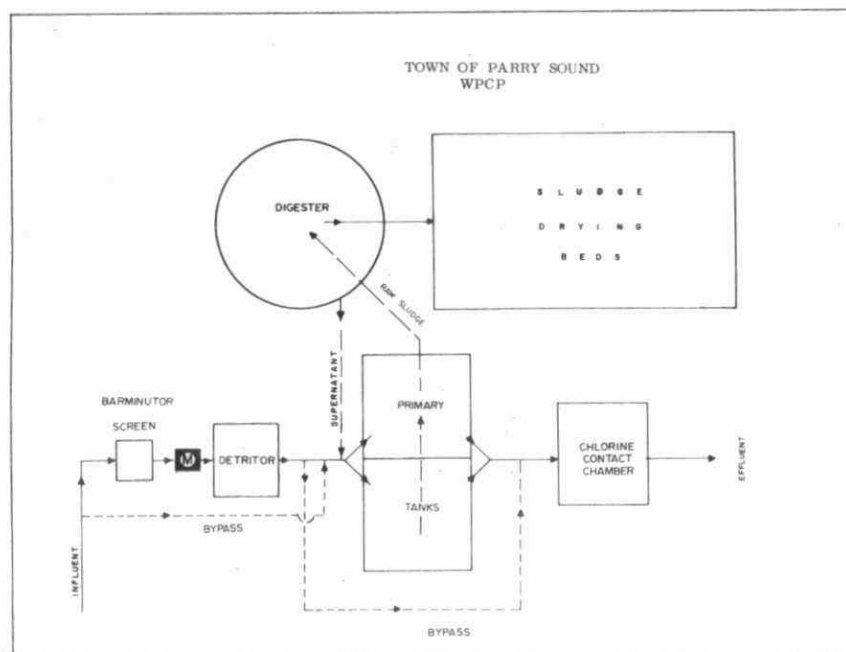
Type: Flygt submersible
Size: Two, 200 gpm

#3: Hawthorne Cres. P.S.

Type: Flygt CP-3100
Size: One, 50 usgpm at 31' tdh

#4: William Street P.S.

Type: Flygt CP-3100
Size: Two, 420 usgpm at 36' tdh

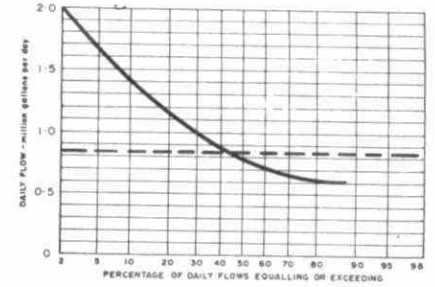
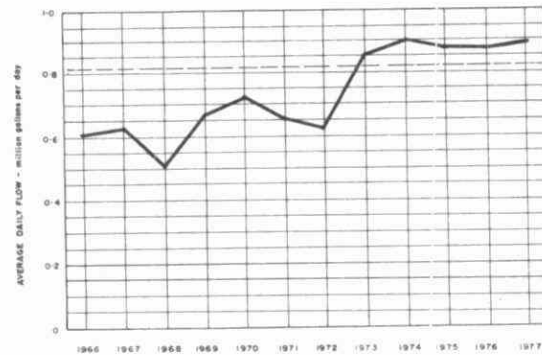


PLANT PERFORMANCE

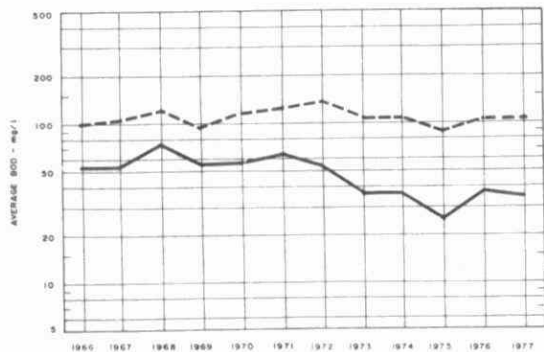
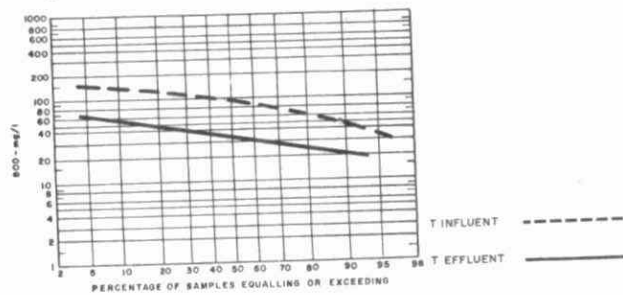
PARRY SOUND WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN	20	.66	.71	107	41	62	14	214	66	69	30	6.2	1.6
FEB	20	.70	1.20	118	63	47	11	152	50	67	20	5.8	1.7
MAR	45	1.44	2.43	43	20	53	10	175	57	67	53	4.8	1.6
APR	30	1.00	1.63	80	39	51	12	139	32	77	32	5.2	1.7
MAY	19	.62	.73	265	33	88	45	211	48	77	31	6.5	2.2
JUNE	18	.58	.88	135	37	73	17	207	29	86	31	7.0	2.3
JULY	20	.63	.90	100	35	65	13	209	45	78	32	6.8	2.4
AUG	24	.79	1.15	49	29	41	5	201	67	67	33	3.5	2.3
SEPT	29	.96	1.72	93	26	72	19	210	44	79	48	5.3	2.5
OCT	31	1.01	1.54	85	21	75	20	92	27	71	20	3.6	2.2
NOV	37	1.22	2.46	72	27	63	16	115	31	73	31	3.6	2.1
DEC	34	1.10	2.20	70	26	63	15	207	24	88	62	3.6	1.5
TOTAL	327	-	-	-	-	-	239	-	-	-	444	-	-
AVG.	27	0.89	2.46	108	35	68	20	181	45	75	37	5.8	1.9
No. of Samples	-	-	-	27	27	-	-	63	63	-	-	155	155

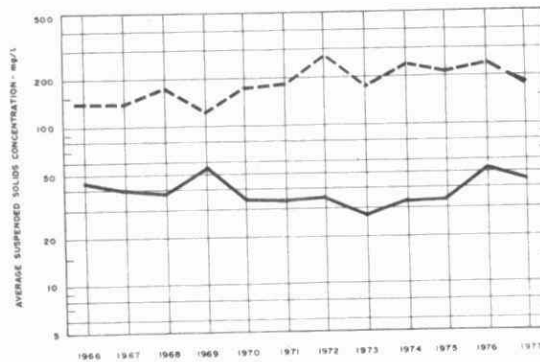
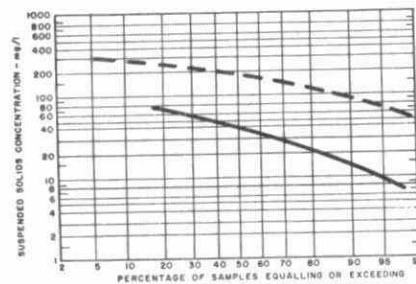
PROCESS DATA FLOWS



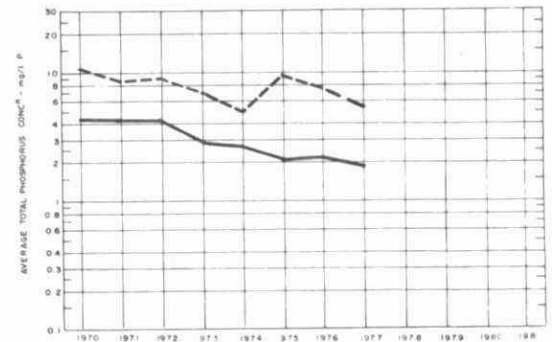
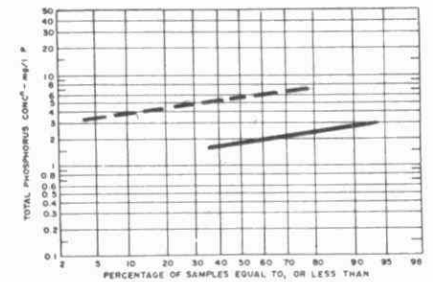
BOD₅



Susp. Solids



Phos.

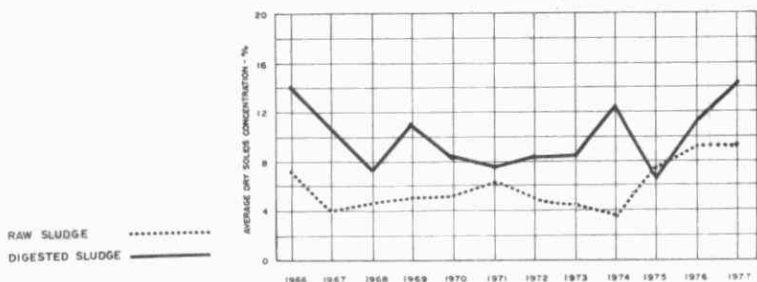
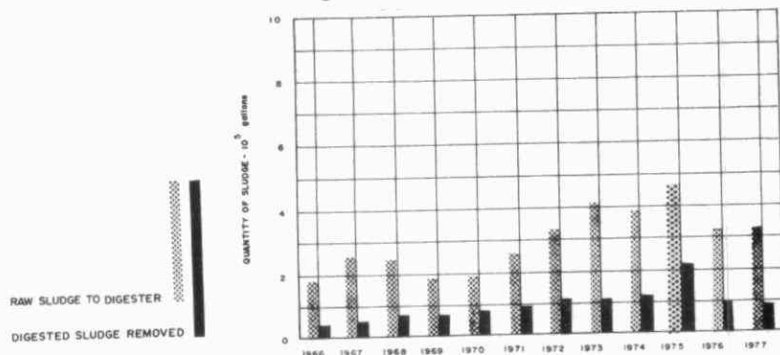


TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	SLUDGE HAULED cubic yards
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %		
JAN	23	1.5	7.2	19	8.4	63	2	10.8	48	.5	
FEB	18	1.0	5.0	19	9.6	65	2	9.1	50	.9	
MAR	454	1.8	4.0	34	14.1	47	6	12.2	42	2.5	
APR	54	1.5	5.1	28	7.4	49	6	15.5	39	1.4	
MAY	19	1.4	7.3	31	6.7	55	9	22.5	35	4.5	47*
JUNE	50	1.4	8.0	28	9.9	52	8	17.5	35	1.8	48*
JULY	60	1.5	7.8	29	9.5	54	8	20.9	40	1.1	
AUG	89	1.3	5.2	29	11.6	54	7	14.9	39	2.2	25*
SEPT	157	1.5	5.1	28	8.6	60	5	14.8	46	1.7	
OCT	50	1.5	4.7	28	8.3	59	10	17.0	33	1.1	
NOV	92	1.5	4.1	28	9.9	50	12	10.0	40	1.9	
DEC	49	1.8	5.1	29	8.0	55	13	8.0	38		
TOTAL	1115	17.7	-	330	-	-	88	-	-	-	120
AVG.	3.1 cubic feet/mil gal	1.5	5.3	28	9.3	55	7	14.4	40	1.8	

Digestion

* Dewatered



DESIGN DATA

PROJECT: City of Sault Ste Marie WPCP

PROJECT NO. 2-0020-58

TREATMENT: Primary

DESIGN FLOW: 8 mgd

PRIMARY TREATMENT

COMMINUTION

Type: Six barminutors Model C
Size: 36"

GRIT REMOVAL

Type: Detritors
Size: Two, each 18' x 18' x 1.25' awd
One, 24 x 24' x 4 awd
Volume (total): 19,400 gal
Retention: 3.4 min

PRIMARY SEDIMENTATION

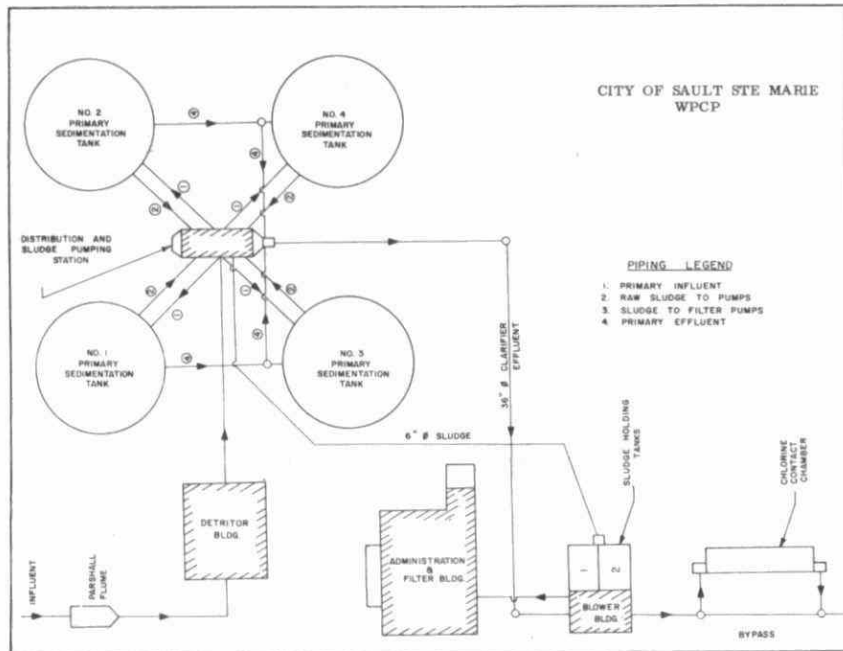
Size: Four, each 70' dia x 8' swd
Two, each 80' dia x 8' swd
Volume (total): 1.271 M.G.
Retention: 3.8 hr

CHLORINATION

Type: Wallace and Tiernan
Size: One, 1500 lb/day
One, 500 lb/day

CHLORINE CONTACT CHAMBER

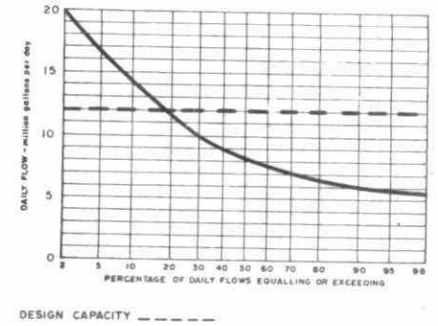
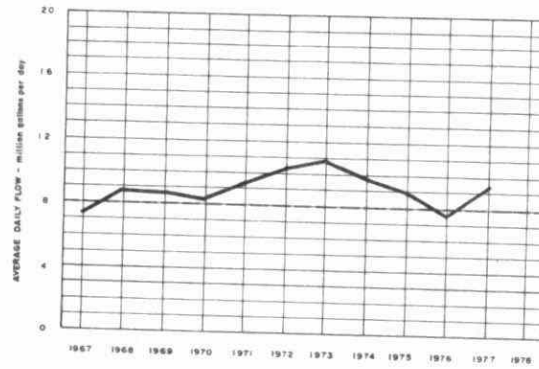
Size: One, 60' x 20' x 12'
One, 75' x 45' x 16.5'
Volume (total): 617,000 I.Gal
Retention: 1.9 min



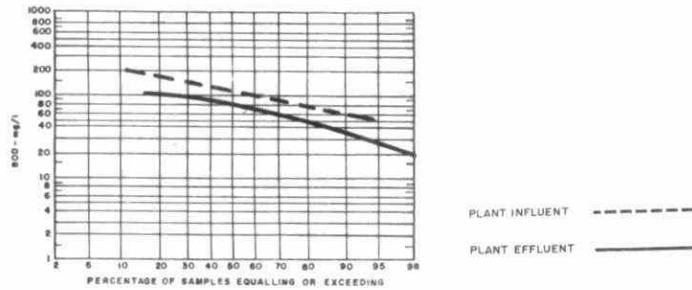
PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	179	5.8	6.4	159	97	39	111	154	89	42	116	6.0	5.0
FEB	180	6.4	7.7	139	96	30	76	177	71	60	191	4.7	5.0
MAR	454	14.6	26.2	107	68	36	177	105	41	61	290		
APR	371	12.4	18.8	82	59	28	85	123	54	56	256	3.8	3.0
MAY	250	8.1	12.4	147	64	56	208	183	52	72	378	7.5	3.6
JUNE	219	7.3	9.2	146	74	49	158	170	67	61	226	7.8	6.0
JULY	254	8.2	12.4	129	76	41	134	143	54	62	225	4.6	4.0
AUG	246	7.9	11.7	157	83	47	182	142	59	58	204	5.8	5.1
SEPT	314	10.5	19.2	128	71	45	179	133	62	53	223	5.1	4.3
OCT	310	10.0	16.9	96	52	46	136	148	52	65	297	6.9	4.3
NOV	347	11.6	19.8	94	50	47	153	136	46	66	312	16.0	3.8
DEC	271	8.8	17.5	149	69	54	217	151	62	59	241	29.0	3.2
TOTAL	3395	-	-	-	-	-	1833	-	-	-	2919	-	-
AVG.	283	9.3	26.2	125	71	43	152	145	59	59	243	8.4	4.4
No. of Samples	-	-	-	95	95	-	-	175	175	-	-	12	12

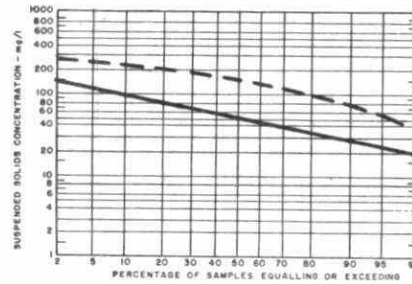
PROCESS DATA FLOWS



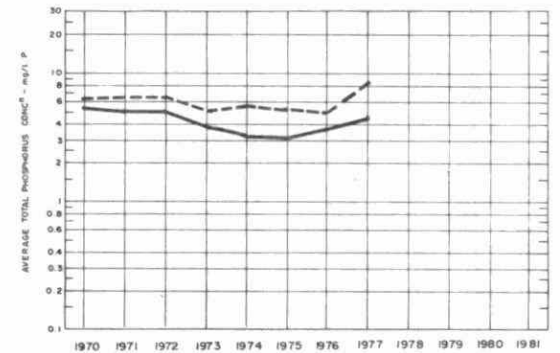
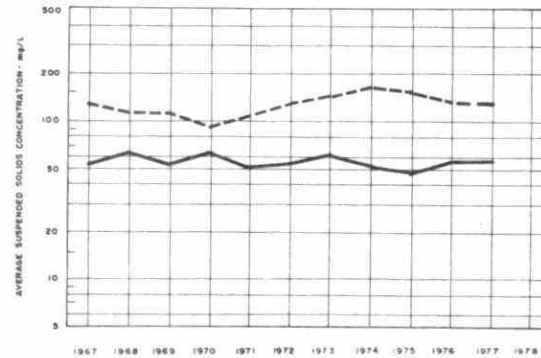
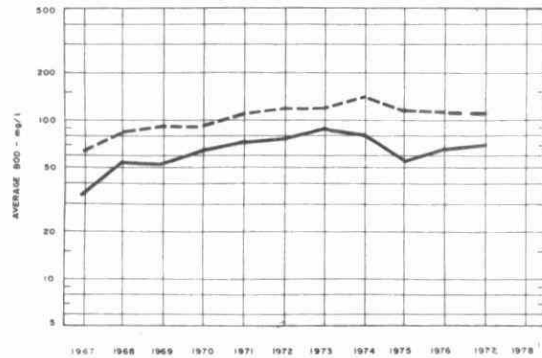
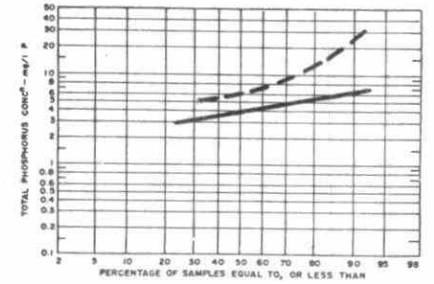
BOD₅



Susp. Solids

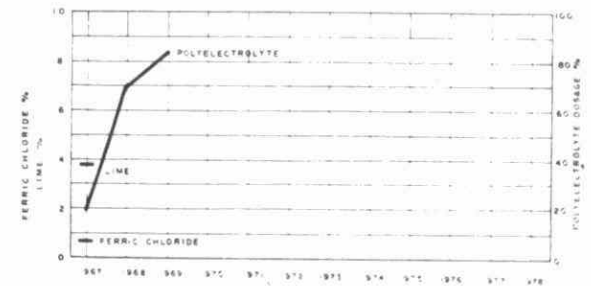
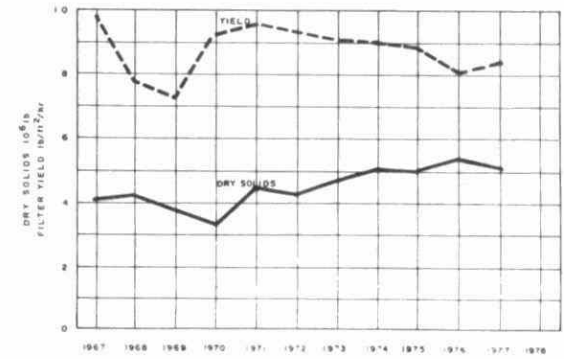


Phos.



TREATMENT DATA

MONTH	GRIT		CHLORINATION		VACUUM FILTER OPERATION					
	QUANTITY MOVED cubic feet	Cl ₂ USED 10 ³ pounds	AVG DOSE mg/l	TOTAL FILTER HOURS	SLUDGE TO FILTERS		YIELD (AVG) lb/ft ² /hr	FILTER CAKE T.S. percent	SLUDGE HAULED cubic yards	
					QUANTITY 10 ³ gallons	TOTAL SOLIDS percent				
JAN	115	14.1	7.8	262	875	4.6	402	7.7	24.0	645
FEB	405	12.2	6.8	240	832	3.8	316	6.6	21.0	587
MAR	1000	15.8	3.5	296	1006	5.6	563	9.5	22.9	765
APR	180	13.6	3.6	240	803	4.6	367	7.6	21.8	561
MAY	750	13.9	3.6	266	900	5.5	495	9.1	22.0	662
JUNE	230	12.9	5.9	290	972	5.1	399	8.6	22.2	698
JULY	130	13.5	3.3	265	828	5.3	439	8.3	24.1	916
AUG	150	15.8	6.4	292	972	5.4	525	9.0	21.9	640
SEPT	100	15.5	4.9	313	1035	5.7	590	9.4	23.1	717
OCT	180	16.0	5.1	282	900	4.8	432	7.9	21.9	627
NOV	300	14.7	4.2	302	996	5.2	518	8.6	21.6	679
DEC	420	13.4	4.9	316	1061	5.2	552	8.9	19.9	676
TOTAL	4400	171.4		3364	11150		5598			8173
AVG	1.8 cu ft mgal	14.3	5.0	280	932	5.1	467	8.4	22.2	681

VACUUM
FILTRATION

**REGION 6
Northwestern**

DESIGN DATA

PROJECT Town of Fort Frances WPCP

PROJECT NO.	2-0059-60	<u>PRIMARY TREATMENT</u>
TREATMENT	Primary	<u>Screening</u>
DESIGN FLOW	2.0 mgd	- Coarse bar screen (2")
DESIGN POPULATION	12,000	<u>Comminution</u>
BOD - Raw Sewage	130 mg/l	Type: Smith & Loveless Model 15R
- Removal	40%	
SS - Raw Sewage	180 mg/l	<u>Grit Removal</u>
- Removal	60%	Type: Aerated; grit removed by clamshell bucket

Size: One 10' 5" x 10' 5" x 13' 9" swd
(1515 cu ft or 9,400 gal)
Retention: 6.8 min

Air Supply

Type: Roots-Connersville
Size: One 100 scfm @ 9 psi

Primary Sedimentation

Type: Elmco Process
Size: Two 40' x 40' x 10' swd
(32,000 cu ft or 200,000 gal)
Retention: 2.4 hours

Loading: Surface, 625 gal/ft²/day
Weir, 9,600 gal/ft/day

CHLORINATION

Type: W & T Model A-731
Size: 400 lb/day

Chlorine Contact Chamber

Size: 27' x 20' x 8.5' (avg)
(4,590 cu ft or 28,600 gal)
Retention: 20.6 min

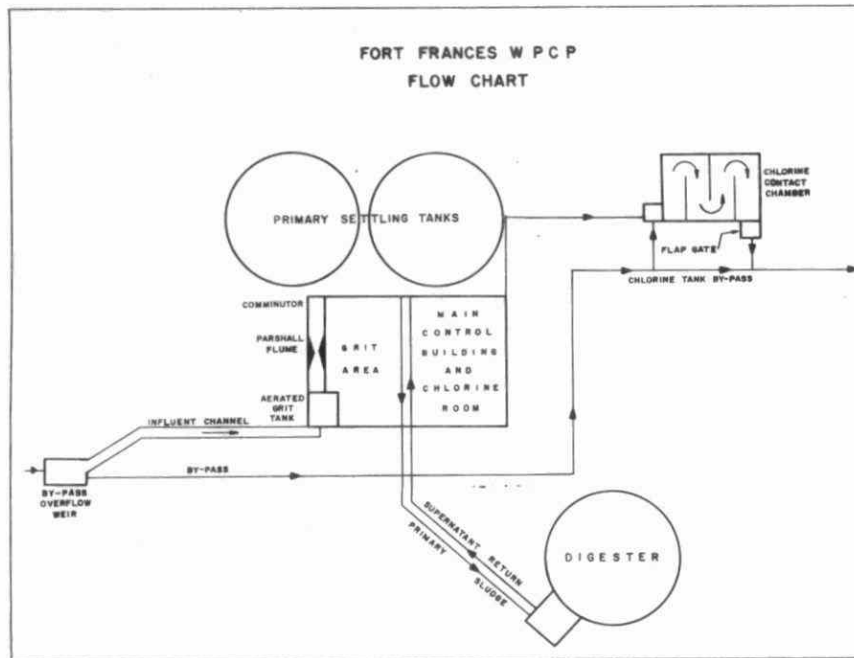
OUTFALL

- to Rainy River

SLUDGE HANDLING

Digestion System

Type: Single stage with floating cover;
gas mixed
Size: One 40' dia x 25' swd (31,500 cu ft
or 195,500 gal)
Loading: 1.38 lb/cu ft/mo
Mixer: Roots-Connersville Type X



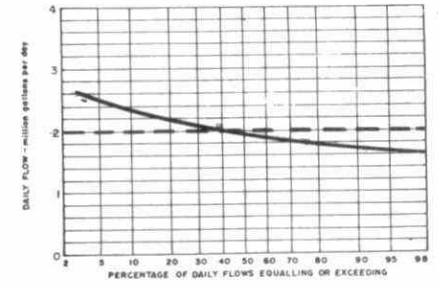
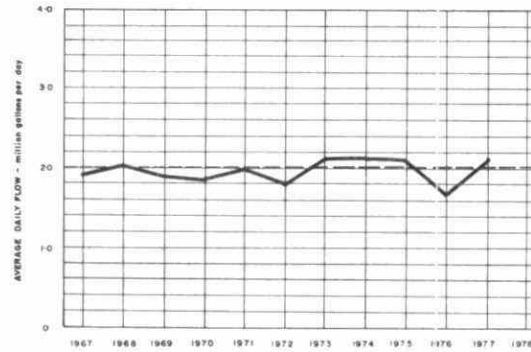
PLANT PERFORMANCE

FORT FRANCES WPCP

SEWAGE

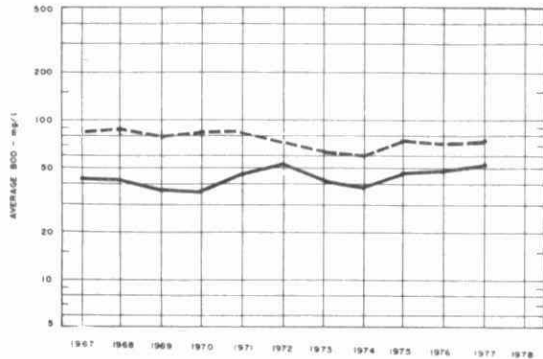
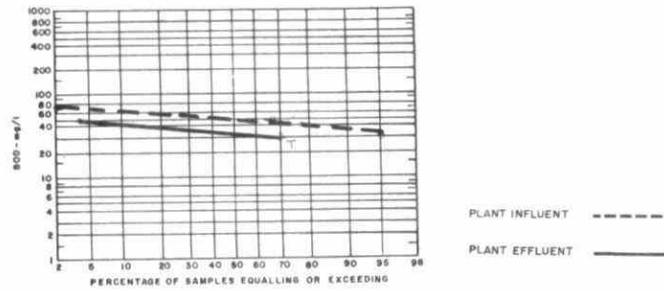
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	ml gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	52.5	1.7	1.8	80	45	44	18	89	65	27	13		
FEB	49.7	1.8	1.9	71	46	35	12	284	128	55	78	3.5	3.0
MAR	57.0	1.8	2.4	93	57	39	20	145	69	52	43	4.0	3.7
APR	55.0	1.8	2.1	84	49	42	19	135	74	45	33	4.2	3.9
MAY	80.0	2.5	4.6	87	55	37	24	137	92	33	36		
JUNE	74.0	2.4	3.9	87	56	36	23	122	60	51	46	3.8	3.1
JULY	69.9	2.2	2.9	40	44			73	40	45	23	2.2	1.8
AUG	57.9	1.8	2.1	71	52	26	11	108	26	75	47	3.2	
SEPT	74.2	2.4	3.3	70	69	25	13	52	44	36	19	2.9	3.1
OCT	73.9	2.3	2.9	70	48	31	16	152	65	57	64	7.1	2.5
NOV	72.5	2.4	2.9	66	45	31	15	100	57	43	31	3.1	2.0
DEC	68.8	2.2	2.8	58	50	13	6	96	48	50	33	3.0	2.8
TOTAL	785.4	-	-	-	-	-	188	-	-	-	486	-	-
AVG.		2.1	4.6	76	52	31	15	126	64	49	40	3.6	2.8
No. of Samples	-	-	-	48	48	-	-	60	60	-	-	11	10

PROCESS DATA FLOWS

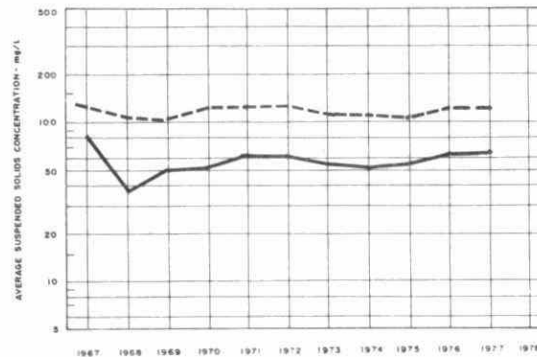
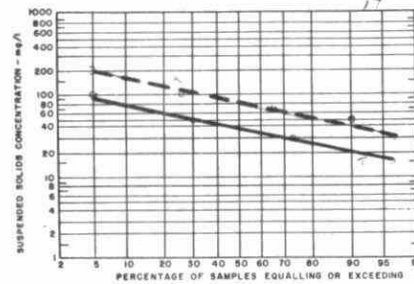


DESIGN CAPACITY - - - - -

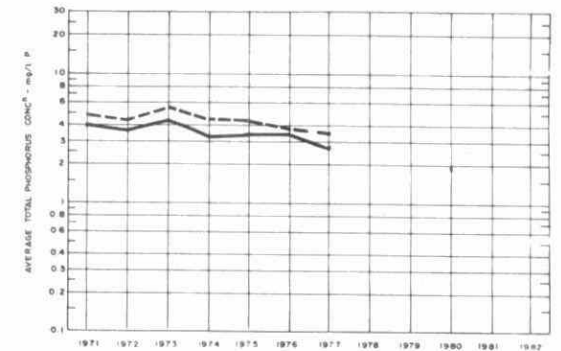
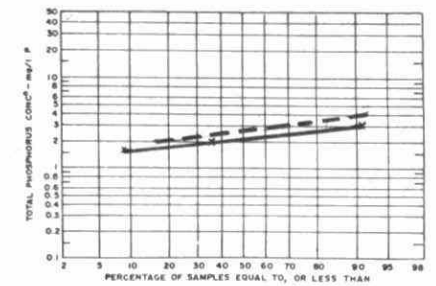
BOD₅



Susp. Solids

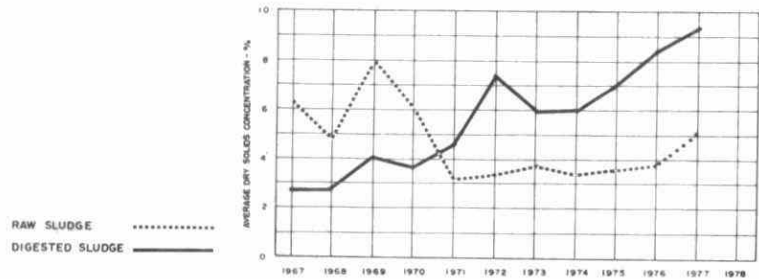
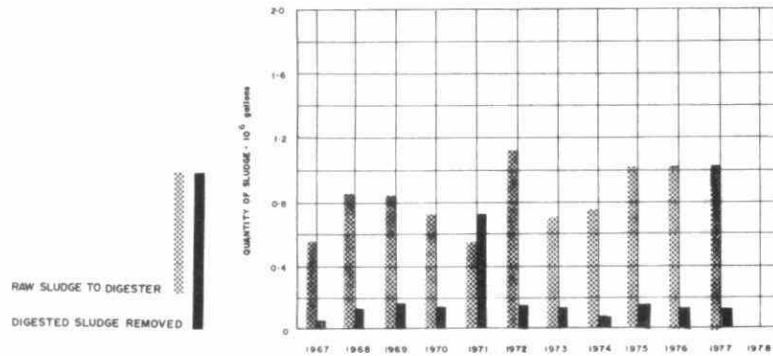


Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	SLUDGE HAULED cubic yards
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %		
JAN		3.1	6.0	51	3.0	67		2.0	57	.2	
FEB	76	2.9	5.9	70	4.3	53	8	8.2	52	.2	54
MAR	15	3.2	5.6	64	5.6	56	1	2.0	50	.3	6
APR	80	3.0	5.6	101	3.6	57	6	14.0		.1	36
MAY		3.2	4.0	83	2.9	63	6	6.5	50	.3	36
JUNE	210	3.3	4.4	101	3.2	57	9	13.8	54	.3	54
JULY	108	3.1	4.3	104	5.1	47	20	14.4	38	.6	120
AUG	100	3.2	5.5	104	5.5	62	18	13.3	52	.4	108
SEPT		3.2	4.3	101	6.1	56	13	13.0	55	1.6	78
OCT	70	3.5	4.8	102	10.5	45	10	11.8	53	.6	60
NOV		3.6	4.9	100	6.6	63	9	7.3	54	1.1	48
DEC	60	3.3	4.9	104	5.7	46	8	7.5	43	.2	48
TOTAL	719	38.6	-	1085	-	-	108	-	-	-	648
AVG	.9		4.9		5.1	56		9.4	50	.4	



DESIGN DATA

PROJECT Thunder Bay N. WPCP
 PROJECT NO. 2-0013-58
 TREATMENT Primary
 DESIGN FLOW 4.0 mgd
 DESIGN POPULATION 40,000

Loading: Surface, 560 gal/ft²/day
 Weir, 6,000 gal/ft/day

Grit Removal

Type: Channels; mechanically cleaned
 (Rex San.)
 Size: Two 35' x 3' x 5' deep (6,540 gal)
 Retention: 4.7 min (two channels)
 Flow Velocity: 0.248 fps

CHLORINATION

Type: W & T
 Size: One 500 lb/day

Chlorine Contact Chamber

Size: 45' x 20' x 10'
 Retention: 20 min

Comminution

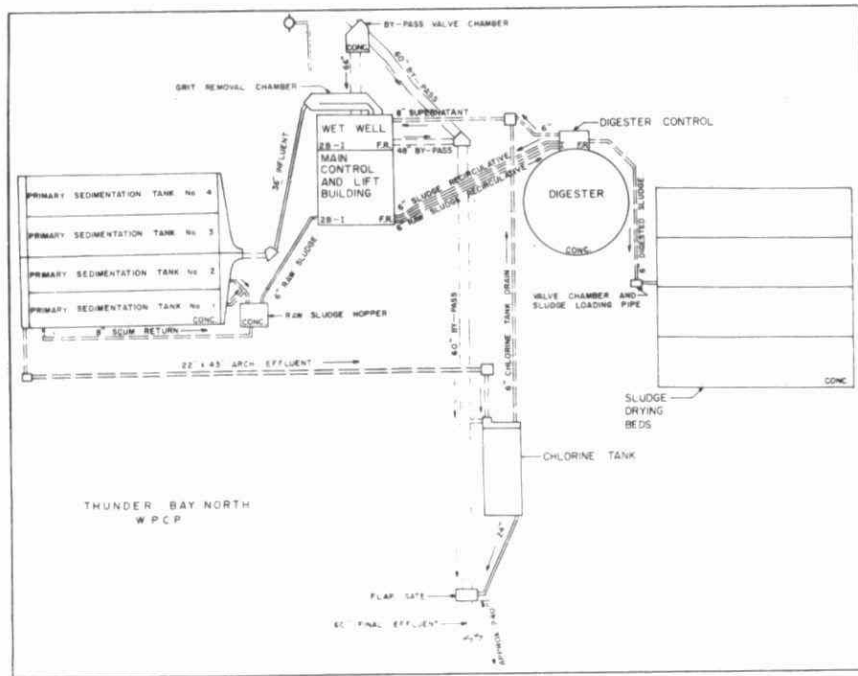
Type: Barminutor
 Size: One Model B (35")
 One Model A1 (48")

Sewage Lift Pumps

- a) Type: Chicago Pumps (ele)
 Size: Two 4150 gpm @ 50' tdh
- b) Type: Fairbanks-Morse (diesel)
 Size: One 29,000 gpm @ 33' tdh

Primary Sedimentation

Type: Jeffrey
 Size: Four 100' x 18' x 8' deep
 (356,000 gal)
 Retention: 2.14 hr

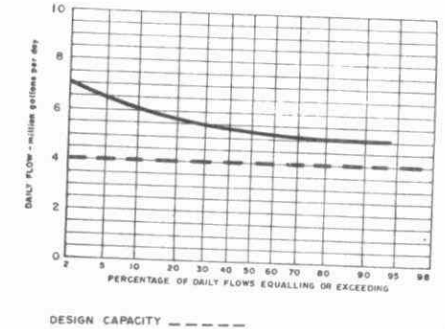
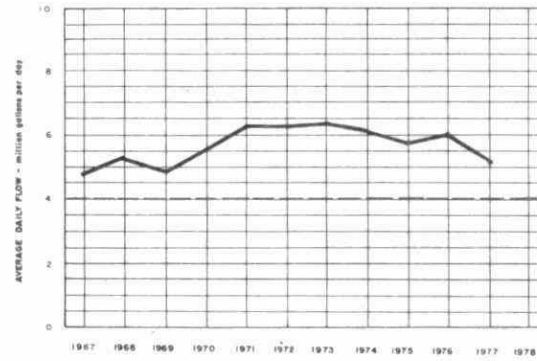


PLANT PERFORMANCE

THUNDER BAY N. WPCP

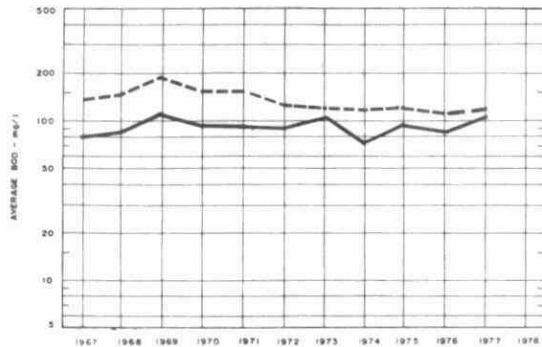
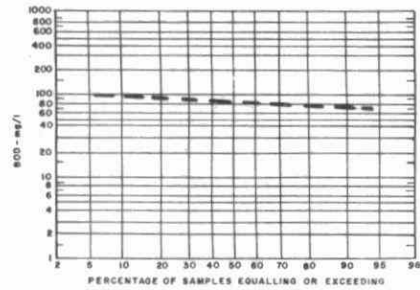
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	161	5.2	5.5	131	105	20	42	148	81	45	108	5.0	4.6
FEB	147	5.3	5.7	104	107	0	0	150	87	42	93	5.2	4.8
MAR	163	6.0	7.2	120	101	16	31	176	85	52	48	5.6	4.8
APR													
MAY													
JUNE													
JULY													
AUG													
SEPT													
OCT													
NOV													
DEC													
TOTAL	471	-	-	-	-	-	66	-	-	-	349	-	-
AVG.	157	5.2	7.2	118	104	12	22	158	84	47	116	5.3	4.7
No of Samples	-	-	-	15	15	-	-	15	15	-	-	3	3

PROCESS DATA FLOWS

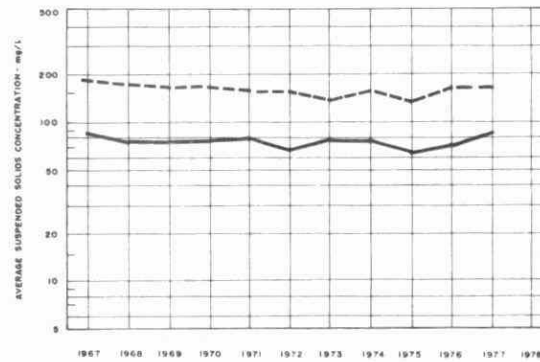
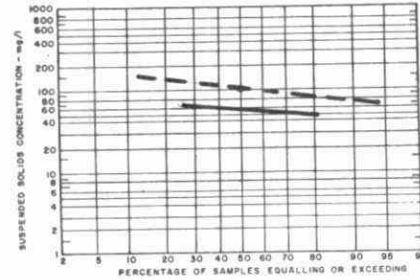


Taken over by city of Thunder Bay Apr. 1, 1977.

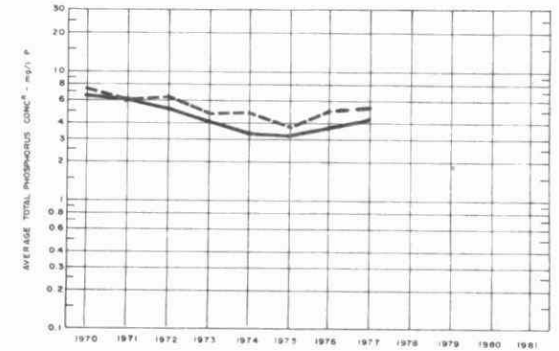
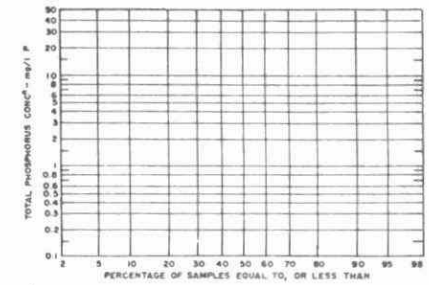
BOD₅



Susp. Solids



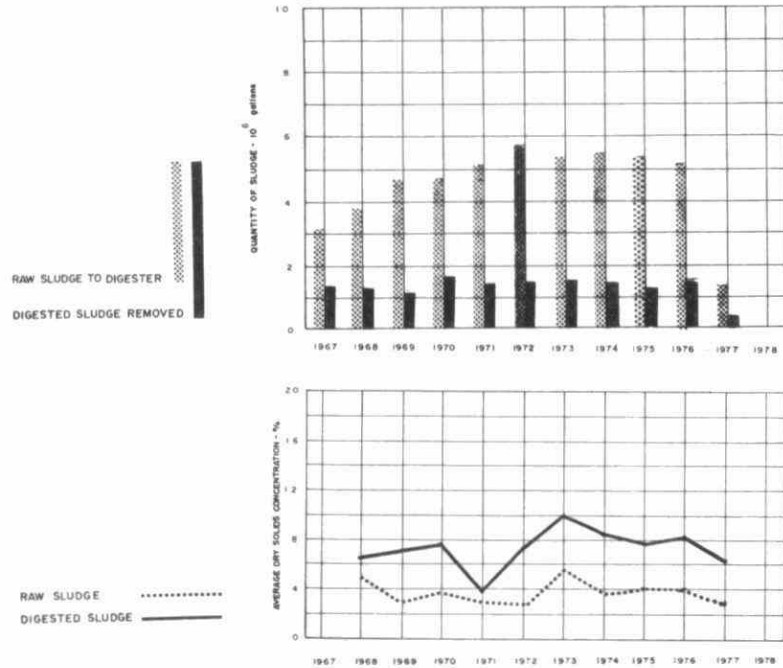
Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	SLUDGE HAULED cubic yards
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %		
JAN	51			474	2.6	83	113	6.4			671
FEB	31			415	2.9	83	93	5.3			550
MAR	62			436	2.8	81	124	6.7			737
APR											
MAY											
JUNE											
JULY											
AUG											
SEPT											
OCT											
NOV											
DEC											
TOTAL	144		-	1325	-	-	330	-	-	-	1958
AVG.	.3 cubic feet/mil gal			442	2.8	82	110	6.1			653

Digestion



DESIGN DATA

PROJECT Thunder Bay S. WPCP
 PROJECT NO. 2-0091-61
 TREATMENT Primary
 DESIGN FLOW 6.0 mgd
 DESIGN POPULATION 48,000

PRIMARY TREATMENT

Screening

- Coarse bar screens
- Type: David Brown
- Size: Two with 1" spacing

Sewage Lift Pumps

Type: Fairbanks-Morse
 Size: Two 5140 gpm @ 36½' tdh
 Two 3490 gpm @ 36½' tdh
 (variable speed, electric)

Grit Removal

Type: Aerated; grit removed by clamshell bucket
 Size: One 29' x 25' x 15' deep
 Retention: 1.5 min

Primary Sedimentation

Type: Jeffrey
 Size: Two 132' x 37' x 10' avg
 (622,000 gal)

Retention: 2.5 hours
 Loading: Surface, 600 gal/ft²/day
 Weir, 10,000 gal/ft/day

CHLORINATION

W & T

Chlorine Contact Chamber

- in effluent chamber

OUTFALL

- to Kam River

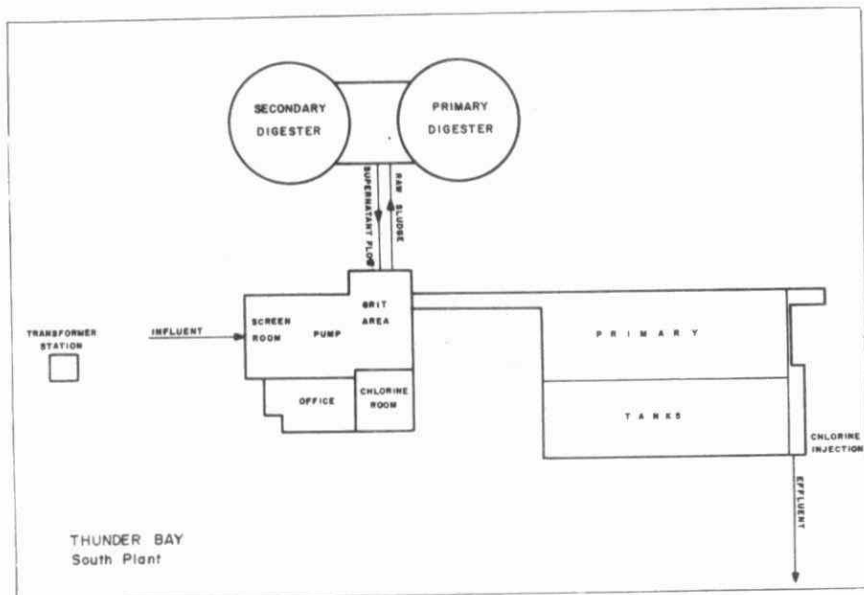
SLUDGE HANDLING

Digestion System

Type: Two-stage

Primary --
 Type - Gas mixed PFT
 Size - One 60' dia (71,000 cu ft or 442,000 gal)
 Loading - 3.0 lb/ft³/mo

Secondary --
 Size - One 60' dia (71,000 cu ft or 442,000 gal)
 Total Loading - 1.5 lb/ft³/mo

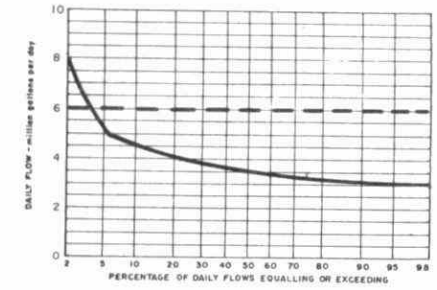
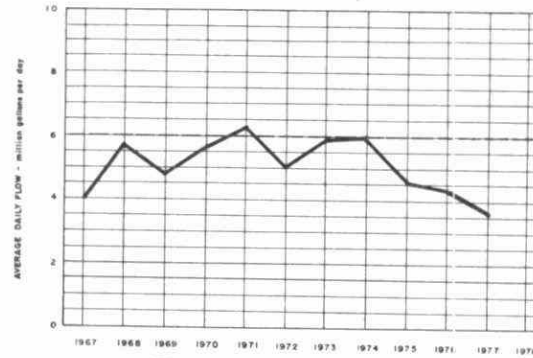


PLANT PERFORMANCE SEWAGE

THUNDER BAY S. WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mi. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	105	3.4	3.7	129	92	29	39	116	47	59	73	5.7	5.0
FEB	95	3.4	3.8	139	105	24	32	105	43	59	59	5.8	4.8
MAR	131	4.8	16.3	130	97	25	43	131	61	53	92	5.9	5.0
APR													
MAY													
JUNE													
JULY													
AUG													
SEPT													
OCT													
NOV													
DEC													
TOTAL	331	-	-	-	-	-	116	-	-	-	221	-	-
AVG.	110	3.6	16.3	133	98	26	39	117	50	57	74	5.8	4.9
No. of Samples	-	-	-	15	15	-	-	15	15	-	-	3	3

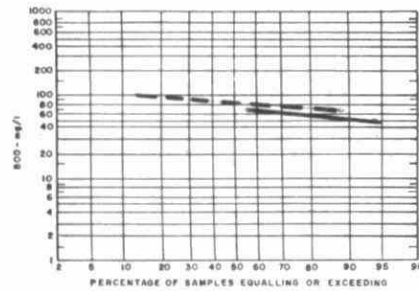
PROCESS DATA FLOWS



DESIGN CAPACITY -----

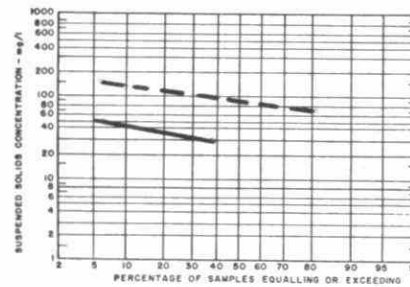
Taken over by city of Thunder Bay Apr. 1, 1977.

BOD₅

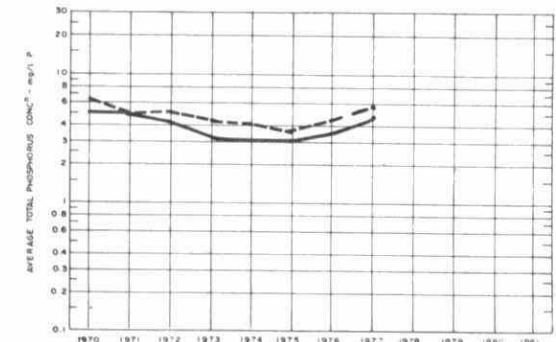
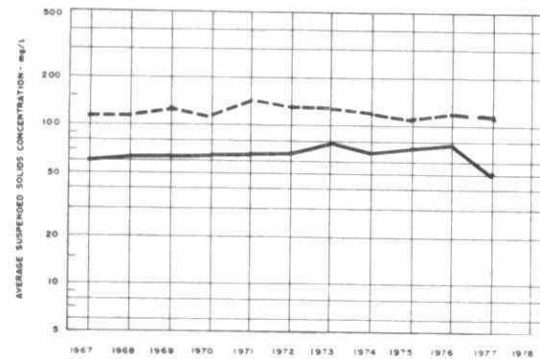
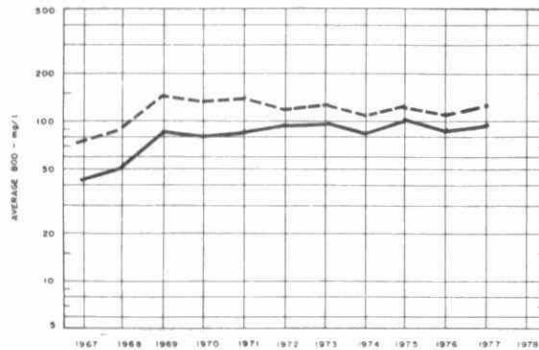
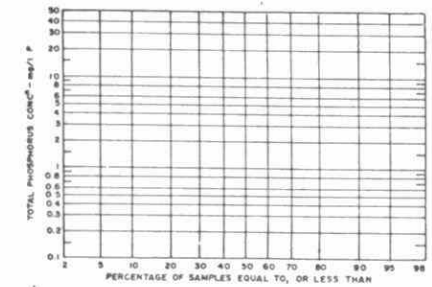


PLANT INFLUENT -----
PLANT EFFLUENT _____

Susp. Solids

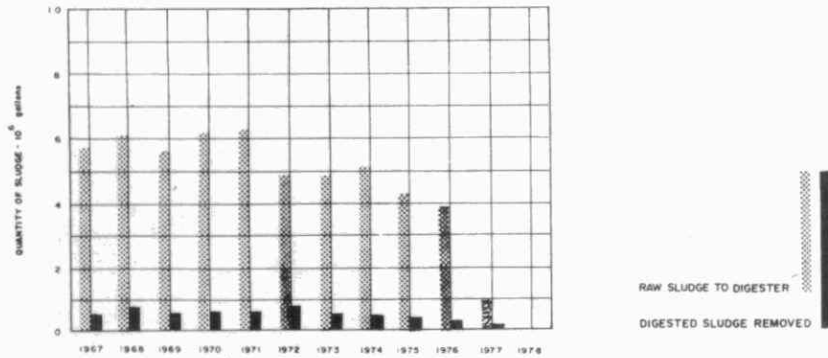


Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT	SLUDGE HAULED cubic yards
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	TOTAL SOLIDS %	
JAN	299	7.3	6.9	325	4.9	65	41	19.7	42	4.2	242
FEB	360	6.7	7.0	247	5.3	30	46	12.7	34	3.1	275
MAR	556	5.4	4.6	378	5.7	74	37	13.9	39	1.9	220
APR											
MAY											
JUNE											
JULY											
AUG											
SEPT											
OCT											
NOV											
DEC											
TOTAL	1215	19.4	-	950	-	-	124	-	-	-	737
AVG.	.6 cubic feet/mil gal	6.5	6.2	317	5.3	56	41	15.4	38	3.1	246



CONVENTIONAL ACTIVATED SLUDGE PLANTS

REGION 1
Southwestern

DESIGN DATA

PROJECT City of Chatham WPCP
 PROJECT NO. 2-0102-62
 TREATMENT Activated Sludge
 DESIGN FLOW 4.5 mgd
 DESIGN POPULATION 45,000
 BOD - Raw Sewage 250 mg/l
 - Removal 90%
 SS - Raw Sewage 250 mg/l
 - Removal 90%

RAW SEWAGE

Screening

- One manually-cleaned bar screen

Pumps

Type: Worthington
 Size: Three 3750 gpm @ 47' tdh
 One 3750 gpm @ 47' tdh
 (electric & standby diesel)

PRIMARY TREATMENT

Grit Removal

Type: Aerated, with clamshell bucket
 Size: One 27' x 14' x 11 2/3 (avg)
 (27,450 gal)
 Retention: 8.8 min
 Air Supply: One Sutorbilt

Comminution

Type: Barminutor
 Size: Two model C

Primary Sedimentation

Type: Jeffrey, two-pass
 Size: Two 80' x 32' x 12' (avg)
 (382,000 gal)
 Retention: 2.05 hr
 Loading: Surface, 878 gal/ft²/day
 Weir, 9400 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air, triple pass
 Size: Two 130' x 63' x 14'
 (1.43 mil gal)
 Retention: 7.6 hr

Difusers

Type: Schumacher tubes
 125 per pass on 12" centres

Air Supply

Type: Sutorbilt
 Size: Three 2500 cfm

Secondary Sedimentation

Type: Jeffrey
 Size: Two 120' x 32' x 12' (avg)
 (574,000 gal)
 Retention: 3.08 hours
 Loading: Surface, 586 gal/ft²/day
 Weir, 8780 gal/ft/day

CHLORINATION

Type: F & P
 Size: One 2000 lb/day
 One 400 lb/day

Chlorine Contact Chamber

Size: One 33.6' x 30' x 10' (62,300 gal)
 Retention: 22 min

OUTFALL

- 1,025' to Thames River

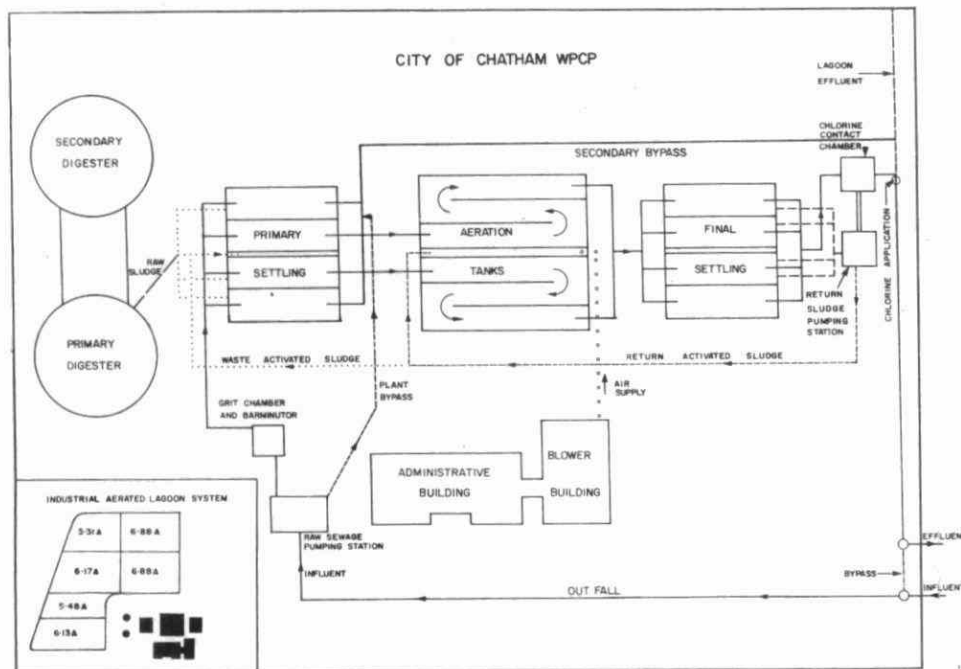
SLUDGE HANDLING

Digestion System - Two-stage
 Primary--

Type: Gas mixed, fixed cover
 Size: One 65' dia x 25' (83,000 cu ft)
 or 0.52 mil gal

Secondary--

Type: Fixed cover
 Size: One 65' dia x 25' (82,000 cu ft)
 or 0.51 mil gal



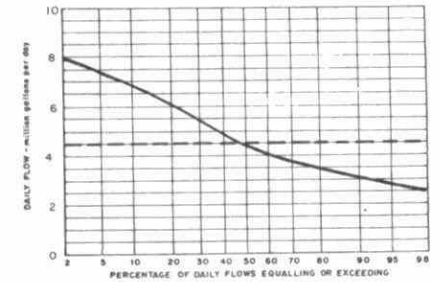
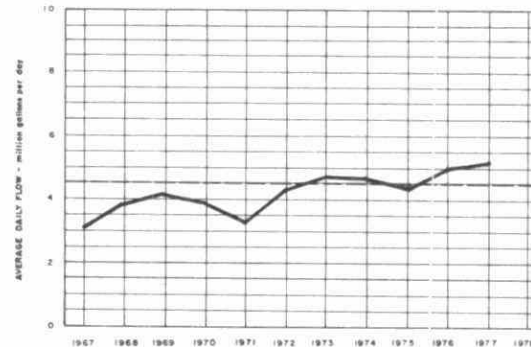
PLANT PERFORMANCE

SEWAGE

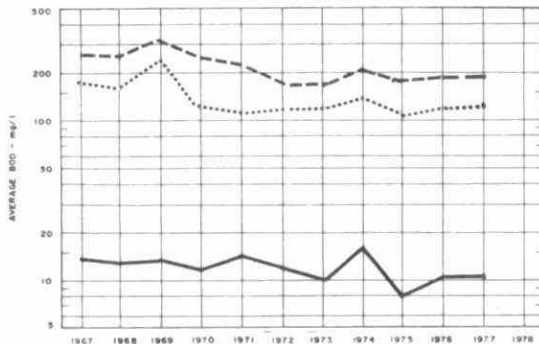
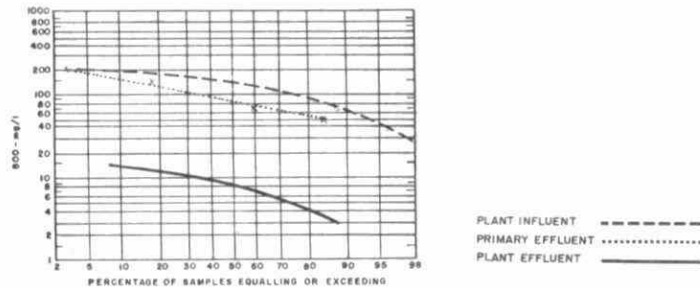
CHATHAM WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mi. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN	99	3.2	4.3	116	21	82	94	319	10	97	306	13.0	0.8
FEB	143	5.1	8.6	195	16	92	257	317	15	95	433	12.5	1.3
MAR	236	7.6	10.2	128	13	90	272	277	13	95	623	18.7	1.4
APR	181	6.0	9.6	198	12	94	337	305	10	97	535	11.6	1.0
MAY	141	4.5	7.5	224	14	94	296	296	9	97	404	11.0	1.3
JUNE	129	4.3	5.7	236	11	95	289	332	8	98	418	24.9	1.1
JULY	140	4.5	6.5	197	7	96	266	244	10	96	327	18.9	0.4
AUG	185	6.0	7.0	146	7	95	257	253	9	96	451	15.3	0.7
SEPT	201	6.7	8.0	147	7	95	281	296	9	97	577	6.4	0.5
OCT	148	4.7	5.5	266	12	95	376	426	10	98	616	10.6	0.5
NOV	145	4.9	7.8	232	16	93	313	374	20	94	513	25.0	0.8
DEC	189	6.0	7.0	110	9	92	191	199	12	93	353	14.9	1.3
TOTAL	1937	-	-	-	-	-	3274	-	-	-	5656	-	-
AVG.		5.3	MAXIMUM 10.2	180	11	93	273	303	11	96	4713	16.0	1.0
No. of Samples	-	-	-	64	60	-	-	255	255	-	-	58	61

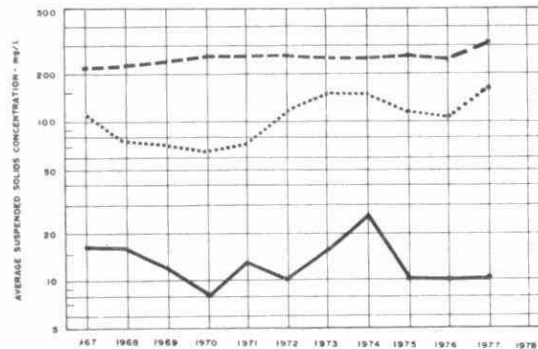
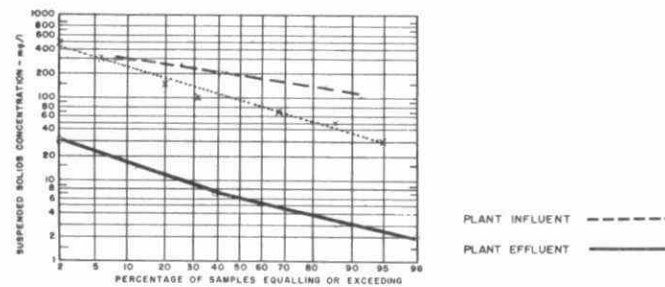
PROCESS DATA FLOWS



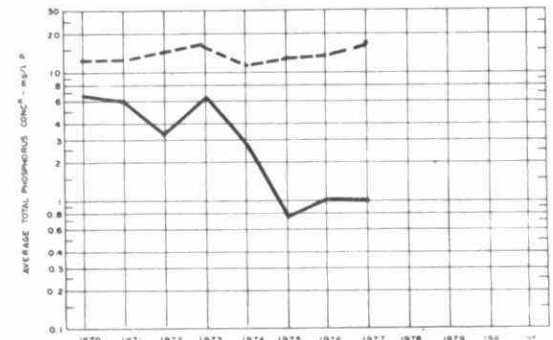
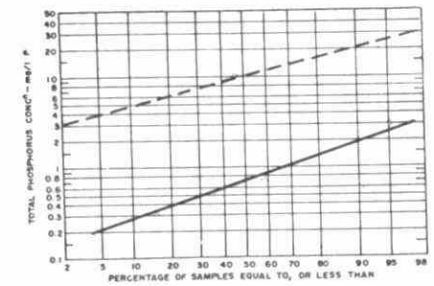
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

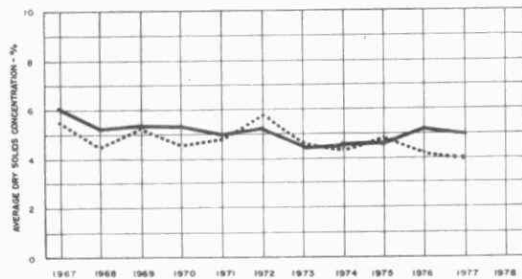
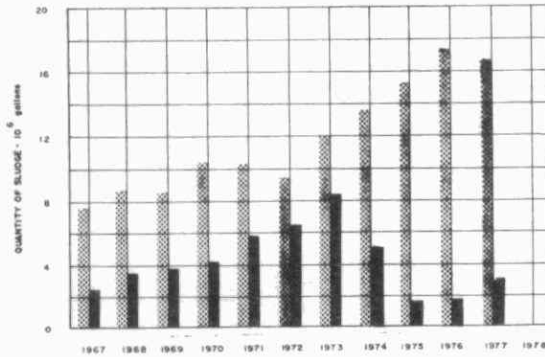
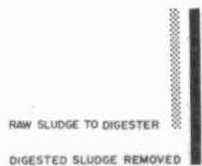
MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		Cl ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M	AIR 1000 ft ³ lb/800	RAW SLUDGE			DIGESTED SLUDGE			SUPER- NATANT T.S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %		
JAN	141			93	110	2000	.10	1.2	1813	3.3	58	218	4.8	43	.2	1292
FEB	140			114	133	3400	.17	0.7	2632	3.8	53	301	4.3	41	.8	1786
MAR	242			67	181	4300	.07	1.2	997	3.6	45	243	6.5	37	.17	1444
APR	140			125	136	2900	.18	0.8	939	5.4	50	160	6.4		.2	750
MAY	132	4.6	3.2	146	107	3000	.15	1.0	1058	4.3	59	156	5.2	41	.9	928
JUNE	118	9.2	7.1	158	121	2800	.17	1.0	1353	4.7	49	197	5.0	41	2.0	1173
JULY	30	11.2	8.0	127	123	2900	.13	1.3	1186	4.1	53	349	4.9	40	2.3	2074
AUG	42	5.8	3.1	99	140	2700	.15	1.3	756	4.8	48	102	5.7	35	.8	606
SEPT	50	6.6	3.3	101	213	3000	.16	1.5	1411	4.3	44	677	4.5	49	1.0	4018
OCT	132	3.8	2.6	264	256	3000	.29	0.7	1127	4.3	49		6.2	32	.6	
NOV	110			298	272	2900	.34	0.5	1717	3.1	45	342	3.7	35	2.0	669
DEC	110			97	121	2500	.16	1.2	1396	3.4	44	324	3.6	39	1.8	1298
TOTAL	1387	41.2	-	-	-	-	-	-	16386	-	-	3069	-	-	-	16038
AVG.	.7 cu. ft/wt gal	8.2	5.2	136	160	2950	.17	1.0		4.0	49	255	5.0	39	1.1	1337

*Chlorination period May 15 through October 22.

TREATMENT DATA

MONTH	CENTRIFUGE OPERATION											
	TOTAL HOURS	DIGESTED VOLUME 10 ³ gallons	SLUDGE TREATED T.S. %	T.S. 10 ³ pounds	POLYMERS USED				CENTRATE S.S. mg/l	CAKE		
					728 pounds	725 pounds				T.S. %	HAULED cubic yards	
JAN	145	384	4.9	188		459	132			1100	21	2279
FEB	124	326	4.4	143		273	71			1500	21	1935
MAR	179	449	5.7	256		544	108			1200	27	2665
APR	187	483	6.3	304		571	136			1300	28	2867
MAY	208	521	5.1	266		775	152			1600	23	1234
JUNE	235	594	4.8	285		813	160			1600	23	1395
JULY	179	491	4.9	240		649	124			1300	22	2914
AUG	218	549	5.7	313		724	129			1400	23	3258
SEPT	195	518	4.5	233		671	52			1300	22	3074
OCT	190	378	6.2	234		649	32			1700	24	2243
NOV	113	350	3.8	133		472	12			1300	19	2077
DEC	129	333	3.3	110		333				1000	18	1976
TOTAL	2102	5376		2705		6933	1108					27917
AVG			4.9							1358	22	

DIGESTION



DESIGN DATA

Project Town of Ingersoll WPCP
 Project No: 1-0076-67
 Treatment: Conventional Activated Sludge
 Design Flow: 2.25 MGD
 (Old Plant 0.75 MGD -
 New plant 1.5 MGD)
 BOD: Raw sewage 200 mg/l
 SS: Raw sewage 200 mg/l

PRETREATMENT (Common)

BAR SCREENS:
 Manually cleaned, in wet well influent channel

RAW SEWAGE PUMPING:
 Two, size 1120 USGPM - variable-speed
 Two, size 2240 USGPM - variable speed

COMMUNITION:
 One comminutor, Capacity 6.75 MGD

GRIT REMOVAL:
 Aerated grit tank
 Size: 11'8" x 14' x 10' swd
 Volume: 10500 I. Gal. Detention: 1.8 min.

OLD PLANT

PRIMARY SEDIMENTATION:
 Two, each 12' x 40' x 10' swd (avg)
 Volume: 60,000 I. Gal. Detention: 1.9 hours
 Overflow rate: 780 I. Gal/day/sq. ft.

AERATION TANKS:
 Two, each 30' x 54' x 15' swd (avg)
 Volume: 300,000 I. Gal. Detention: 9.7 hours
 Fine bubble diffusion
 Blowers: Two, size: each 764 cfm at 7.5 psi

SECONDARY SEDIMENTATION:
 Two, 15' x 45' x 12' swd (avg)
 Volume: 100,000 I. Gal. Detention: 3.2 hours
 Overflow rate: 550 gal/day/sq. ft.

CHLORINE CONTACT CHAMBER:

Size: 18' x 12' x 11' swd
 Volume: 13,000 I. Gal. Detention: 25 min.

SLUDGE HOLDING TANK:

Size: 11' x 25' x 12'6" swd
 Volume: 22,000 I. Gal.

NEW PLANT

PRIMARY SEDIMENTATION:

Two, 16' x 65' x 11' swd (avg)
 Volume: 142,000 I. Gal.
 Detention: 2.3 hours
 Overflow rate: 720 I. gal/ft²/day

AERATION TANKS:

Two, each with two cells 30' square x 13' swd
 Volume: 270,000 I. Gal.
 Detention: 4.3 hours

SECONDARY SEDIMENTATION:

Two, each 16' x 78' x 12' swd
 Volume: 187,000 I. Gal.
 Detention: 3 hours
 Overflow rate: 600 I. Gal/ft²/day

CHLORINE CONTACT CHAMBER:

Size: 26'6" x 24' x 10'3" swd
 Volume: 41000 I. Gal.
 Detention: 35 min.

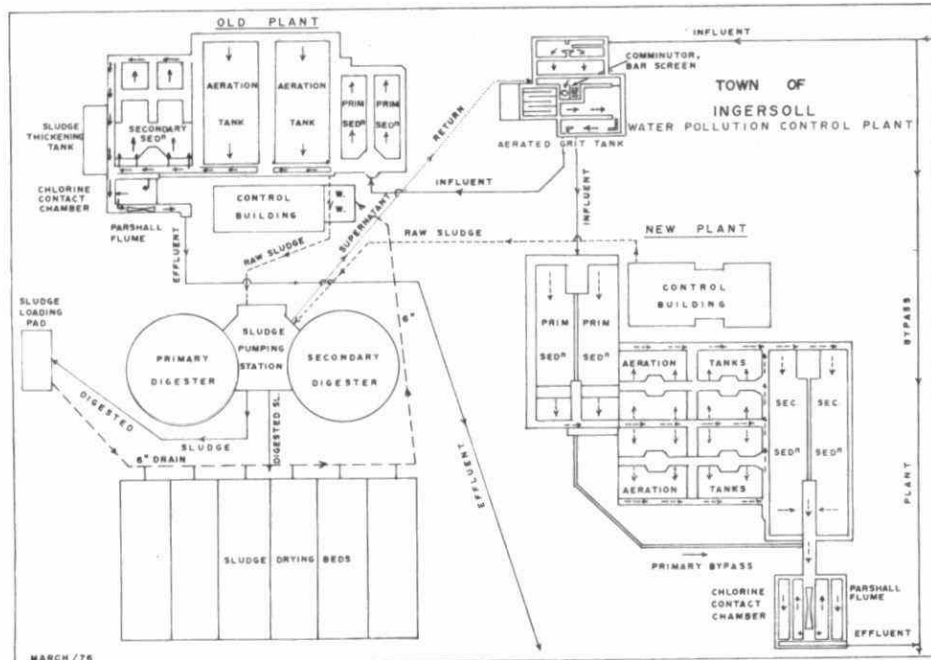
SLUDGE HANDLING (Common)

PRIMARY DIGESTER:
 Size 45' dia. x 21'3" swd
 Volume: 36,000 ft³

SECONDARY DIGESTER:
 Size: 45' dia. x 25'
 Volume: 39,000 ft³

SLUDGE DRYING BEDS:

Six, each 20' x 75'
 Area: 9000 ft².



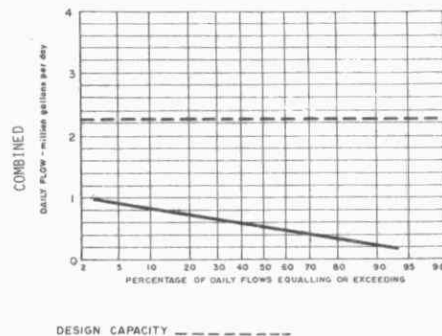
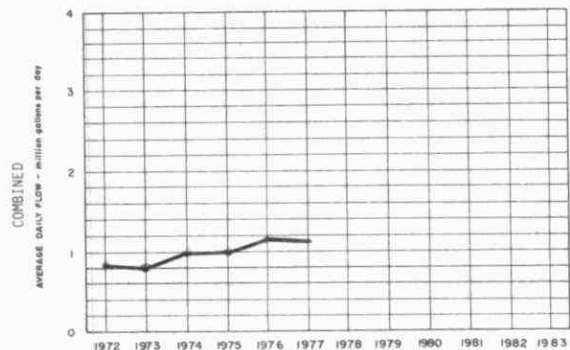
PLANT PERFORMANCE

INGERSOLL WPCP

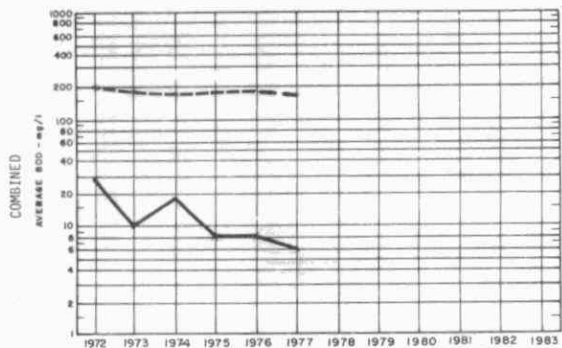
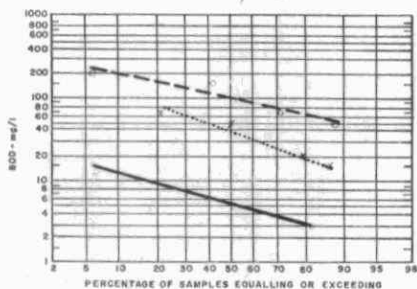
NEW PLANT

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	14	.43	.66	148	15	90	18	208	13	94	26	8.9	3.8
FEB	15	.52	.84										
MAR	31	1.00	1.76	149	14	91	42	303	5	98	93	6.3	1.8
APR	27	.88	1.00	94	10	89	22	286	6	98	74	6.3	3.7
MAY	23	.74	1.65	112	5	96	25	348	8	98	79	7.3	1.6
JUNE	20	.67	.84	124	4	97	24	287	7	98	57	9.0	.4
JULY	23	.74	.92	310	6	98	70	398	6	98	91	8.8	.4
AUG	25	.80	.98	255	6	97	62	690	3	99	172	17.5	1.1
SEPT	27	.89	1.25										
OCT	27	.86	1.08	205	6	97	54	243	6	97	64	11.8	1.4
NOV	24	.81	1.05	237	10	95	55	505	6	98	122	12.0	.7
DEC	28	.91	1.47	52	15	71	10	104	10	90	26	2.3	1.5
TOTAL	284	-	-	-	-	-	469	-	-	-	963	-	-
AVG.		.70	MAXIMUM 1.76	174	9	94	40	347	8	97	80	8.9	1.7
No. of Samples	-	-	-	15	16	-	-	23	24	-	-	14	16

FLOWS

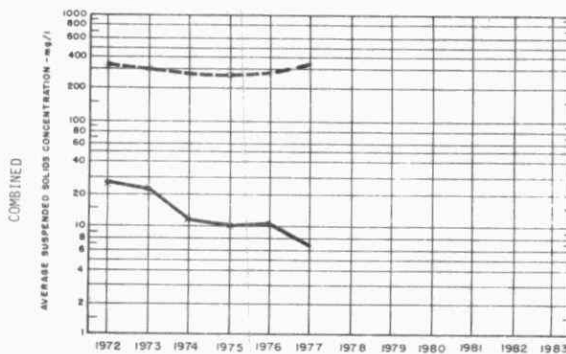
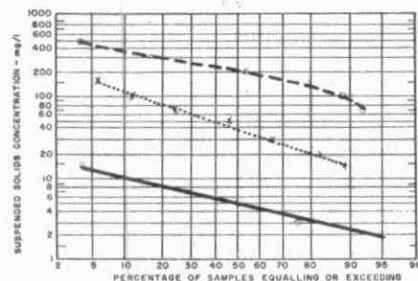


BOD₅

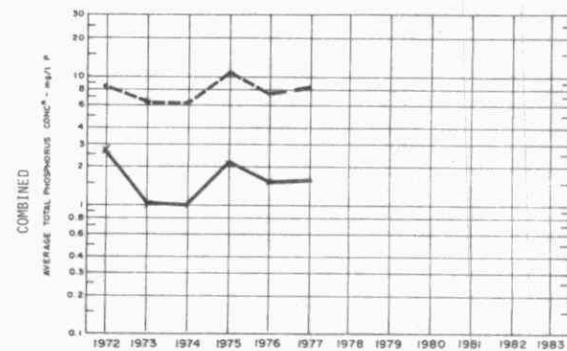
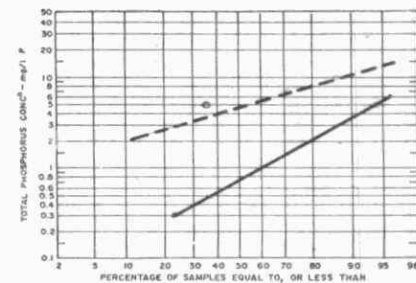


NEW PLANT

Susp. Solids



Phos.



PLANT PERFORMANCE

INGERSOLL WPC

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	21.2	.68		148	11	92	29	208	10	97	43	4.5	3.7
FEB	22.0	.78											
MAR	43.4	1.40		130	10	92	52	303	5	98	130	6.3	1.3
APR	37.1	1.23		94	7	92	32	286	5	98	103	6.3	3.1
MAY	33.0	1.06		112	4	96	36	348	8	97	112	7.3	1.6
JUNE	30.0	1.00		124	4	97	36	287	8	97	84	9.0	1.2
JULY	33.5	1.08		310	4	98	102	398	5	98	131	8.8	0.4
AUG	36.0	1.16		255	4	98	91	690	3	99	248	17.5	0.9
SEPT	38.4	1.28						627	21	96	231		
OCT	38.9	1.25		205	5	97	78	243	6	97	92	11.8	1.3
NOV	35.4	1.18		237	7	97	81	505	6	98	176	12.0	0.5
DEC	41.1	1.32		52	9	82	18	104	9	91	39	2.3	1.1
TOTAL	410.0	-	-	-	-	-	668	-	-	-	1394	-	-
AVG.		1.12	MAXIMUM	169	6	96	56	347	7	97	116	8.5	1.6
No. of Samples	-	-	-	16	31	-	-	23	46	-	-	13	31

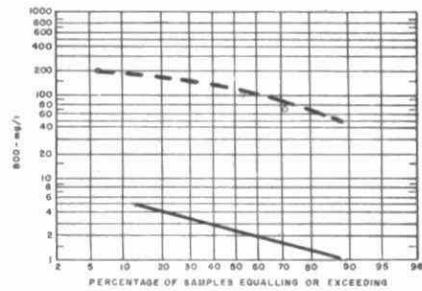
PLANT PERFORMANCE

OLD PLANT

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	7.2	.23	.26	148	8	95	10	208	8	96	14	8.9	3.6
FEB	7.0	.25	.32										
MAR	12.4	.39	.66	92	2	98	11	303	6	97	22	6.3	.4
APR	10.1	.33	.42	94	5	95	9	286	5	98	28	6.3	2.6
MAY	10.0	.32	.68	112	3	97	11	348	9	97	34	7.3	1.5
JUNE	10.0	.31	.40	124	3	98	11	287	9	97	26	9.0	2.2
JULY	10.5	.33	.45	310	2	99	32	398	5	99	41	8.8	.4
AUG	11.0	.35	.42	255	3	98	27	690	4	99	75	17.5	.7
SEPT	11.4	.37	.54					627	7	98	70		
OCT	11.9	.38	.48	205	4	98	24	243	7	97	28	11.8	1.2
NOV	11.4	.37	.49	237	4	98	26	505	6	98	56	12.0	.4
DEC	13.1	.42	.58	52	3	94	6	104	8	92	12	2.3	.7
TOTAL	126.0	-	-	-	-	-	212	-	-	-	429	-	-
AVG.		.34	MAXIMUM	172	3	98	17	347	6	98	35	9.0	1.4
No. of Samples	-	-	-	14	15	-	-	23	22	-	-	14	15

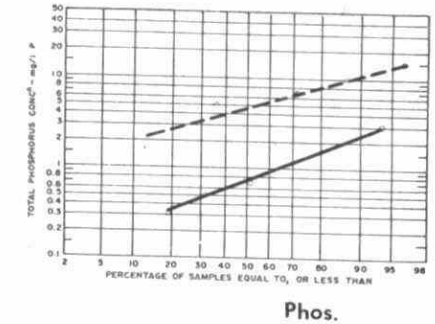
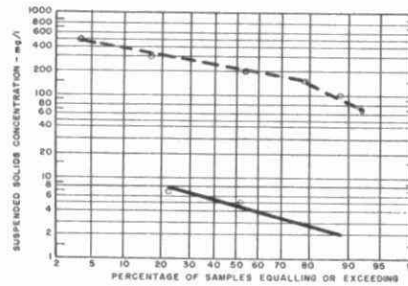
OLD PLANT

BOD₅



PLANT INFLUENT -----
 PRIMARY EFFLUENT
 PLANT EFFLUENT _____

Susp. Solids



Phos.

TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	SLUDGE HAULED cubic yards
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %		
JAN		662	4.9	104			51	5.2			300
FEB		484	3.2	119			13				77
MAR		686	2.1	133			133	2.5			786
APR		627	2.3	165			94				555
MAY		934	4.0	164			96				569
JUNE	15	693	3.4	131			146				865
JULY		624	2.7	218			70	2.6			416
AUG	27	911	3.6	264			70				777
SEPT	27	882	3.3	251			152				899
OCT	27	720	2.7	250			116				684
NOV	45	704	2.9	223			165	4.3			977
DEC	35	600	.2	89			69	4.2			407
TOTAL	136	8527	-	2111	-	-	1175	-	-	-	7312
AVG.	.3 cubic feet/mil gal		2.1					3.7			

* Data on this page are common to both plants.

TREATMENT DATA

OLD PLANT

NEW PLANT

MONTH	PRIMARY EFFLUENT		AERATION			PRIMARY EFFLUENT		AERATION		
	BOD	SUSPENDED SOLIDS	MLSS CONC	F/M	AIR	BOD	SUSPENDED SOLIDS	MLSS CONC	F/M	AIR
	mg/l	mg/l	mg/l	day ⁻¹	1000 ft ³ /lb BOD	mg/l	mg/l	mg/l	day ⁻¹	1000 ft ³ /lb BOD
JAN	50	71	2000	.02		62	68	2300	.4	
FEB			3300					2300		
MAR	92	187	2800	.04		149	77	2400	.23	
APR	94	286	2100	.05		16	20	2000	.3	
MAY	112	348	2700	.04		26	30	2600	.03	
JUNE	124	62	2500	.05		38	52	1700	.5	
JULY	310	398	2700	.13		86	50	2200	.10	
AUG	255	690	2900	.10		110	131	2900	.11	
SEPT			3300					2400		
OCT	205	243	3700	.07		114	78	3100	.11	
NOV			3400	.08		69	99	2600	.07	
DEC			2900	.02		124	122	2700	.15	
TOTAL	-	-	-	-	-	-	-	-	-	-
AVG	155	285	2900	.06		77	79	2400	.19	

DESIGN DATA

Project Town of St. Marys WPCP
 Project No. 1-0030-66
 Design Flow 0.8 MIGD
RAW SEWAGE PUMPING:
 3 FLYGT Model CP-3200 submersible pumps
 each rated 1000 USGPM at 40' TDH

COMMUNICATOR:
 Type - ECODYNE Mod 25R

SCREENING:
 Bar Screen

DETRITOR:
 Type - DORR-OLIVER Type WA. Cap. 3.8 M.G.D.

PRIMARY CLARIFIERS:
 2, each 30.0' i.d. x 11.5' swd
 Volume (total) 104540 l. gal. Detention: 3.1 hr.
 Overflow rate: 560 gpd per sq. ft.
 Raw Sludge Pumps: Type - CARTER

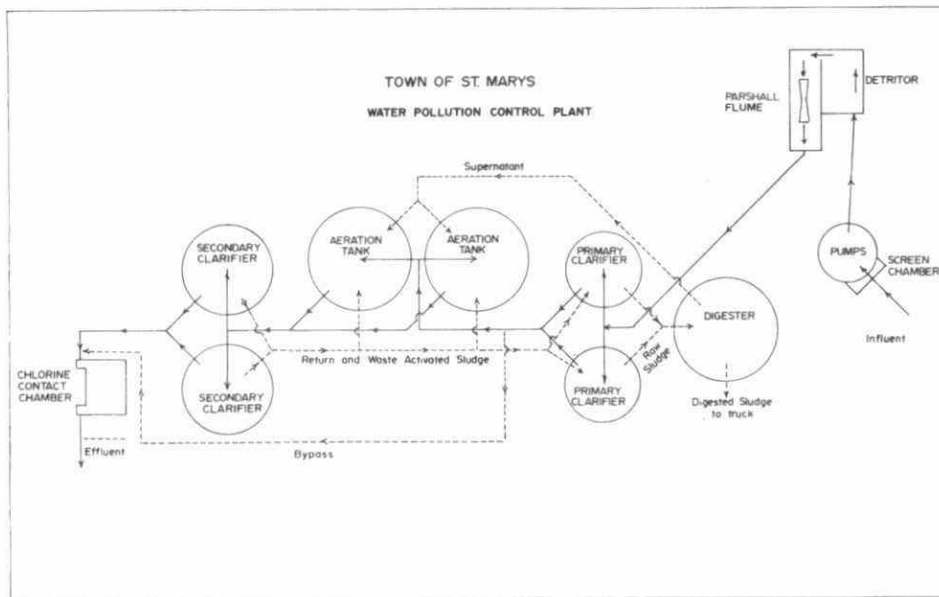
AERATION TANKS:
 2, each 36.0' i.d. x 15.0' swd
 Volume (total) 190,620 l. gal. Detention: 5.7 hr.
 Aerators: Type AMES-CROSTA
 Return Sludge Pumps: 2 SMART-TURNER Model 3 WPCS

SECONDARY CLARIFIERS:
 2, each 35.0' i.d. x 10.0' swd
 Volume (total) 120,947 l.g. Detention: 3.5 hr.
 Overflow Rate: 415 gpd per sq. ft.

CHLORINE CONTACT CHAMBER 4-pass:
 2 passes 4.4' w x 13.0' l x 9.5' swd
 1 pass 4.8' w x 13.0' l x 9.5' swd
 1 pass 6.7' w x 13.0' l x 9.5' swd
 Volume (total) 1528 l.g. Detention: 29 min.

CHLORINATOR TYPE:
 Wallace and Tiernan

PRIMARY DIGESTER:
 one, 40.0' i.d. x 20.0' swd
 Volume: 26650 cu. ft.

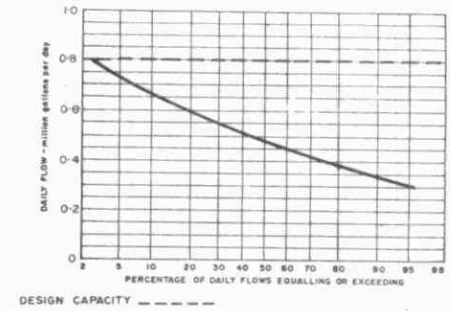
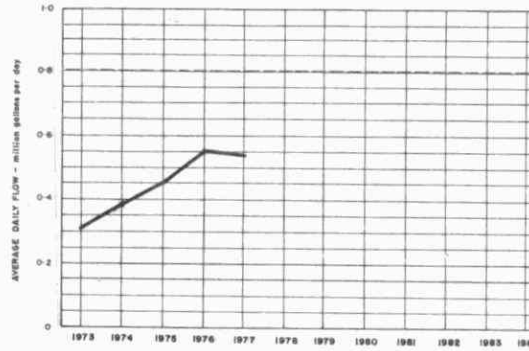


PLANT PERFORMANCE

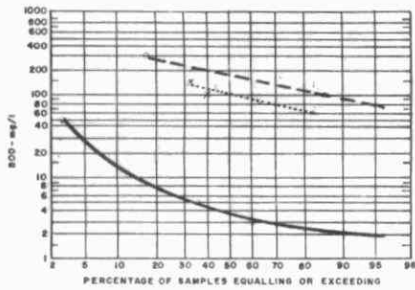
ST. MARYS WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	15.8	.51	.72	363	4	99	57	229	4	98	36	6.4	0.8
FEB	15.2	.54	.66	208	7	97	31	127	6	95	18	5.1	0.6
MAR	26.4	.85	2.00	152	4	99	40	428	2	99	112	5.5	0.4
APR	17.2	.57	.98	238	5	98	40	152	4	97	25	4.7	0.5
MAY	13.9	.44	.67	235	6	97	32	153	3	98	21	5.4	0.5
JUNE	13.4	.44	.61	363	10	97	47	204	13	94	26	4.8	0.6
JULY	14.4	.46	.71	203	5	98	29	256	4	98	36	8.0	2.2
AUG	14.5	.46	.56	408	10	97	58	273	8	97	38	7.8	1.3
SEPT	17.7	.59	1.05	465	32	93	77	184	21	88	29	7.9	3.7
OCT	13.7	.44	.72	242	8	96	32	161	2	98	22	6.1	1.9
NOV	16.6	.55	.77	159	3	98	26	138	4	97	22	6.0	1.1
DEC	21.9	.70	1.57	156	3	98	34	125	2	98	27	5.3	1.0
TOTAL	200.7	-	-	-	-	-	539	-	-	-	413	-	-
AVG.		.54	MAXIMUM 2.60	277	8	97	45	212	6	97	34	6.1	1.2
No. of Samples	-	-	-	28	28	-	-	28	28	-	-	28	28

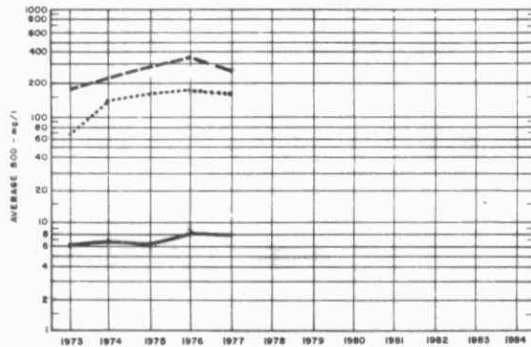
PROCESS DATA FLOWS



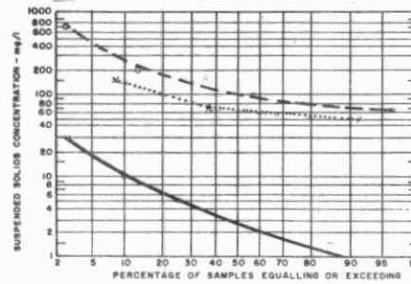
BOD₅



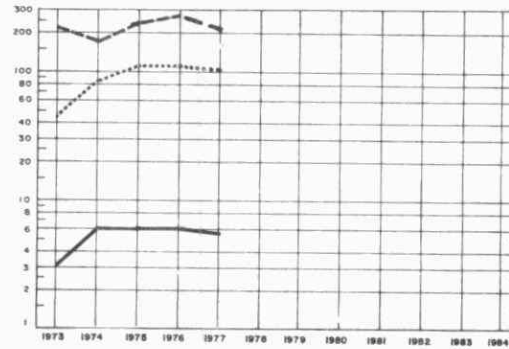
PLANT INFLUENT - - - - -
PRIMARY EFFLUENT
PLANT EFFLUENT —————



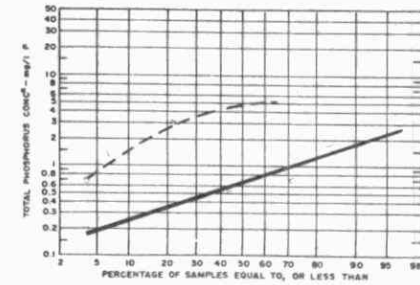
Susp. Solids



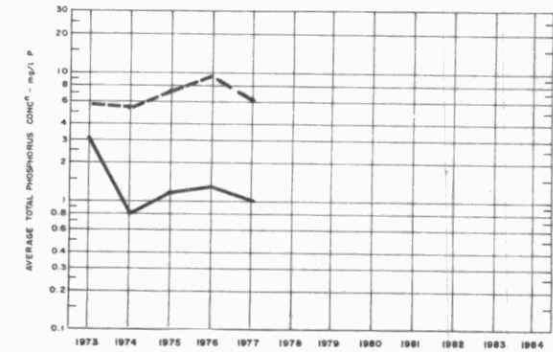
PLANT INFLUENT - - - - -
PRIMARY EFFLUENT
PLANT EFFLUENT —————



Phos.



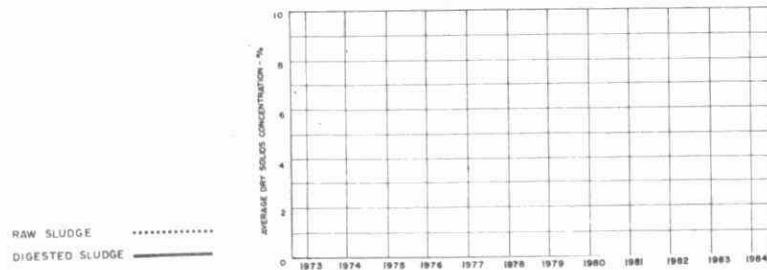
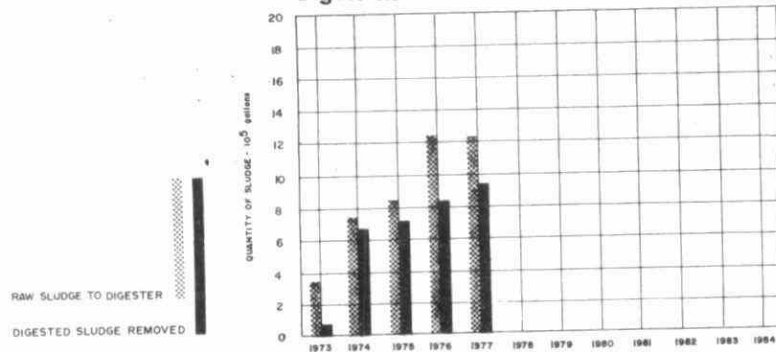
PLANT INFLUENT - - - - -
PLANT EFFLUENT —————



TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
	QUANTITY REMOVED	Cl ₂ USED	AVG DOSE	BOD	SUSPENDED SOLIDS	MLSS CONC	F/M	AIR	RAW SLUDGE			DIGESTED SLUDGE			SUPER	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	mg/l	mg/l	day ⁻¹	1000 ft ³ lb 800	QUANTITY 3	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 5	TOTAL SOLIDS %	VOL SOLIDS %	NATANT T.S. %	cubic yards
JAN	21	274	1.7	198	106	1600	.33		117			55				325
FEB	13	321	2.1	153	101	2000	.21		132			50				300
MAR	89	373	1.4	148	83	1700	.38		93			71				424
APR	23	331	1.9	124	101	1400	.26		83			62				370
MAY	41	324	2.3	125	92	1600	.17		100			66				393
JUNE	27	247	1.8	253	130	1500	.30		112			105				626
JULY	21	334	2.3	157	95	1900	.20		109			108				641
AUG	25	346	2.3	203	181	1900	.30		113			85				505
SEPT	27	325	1.8	180	82	2500	.22		104			99				590
OCT	24	353	2.6	192	99	1700	.30		113			73				434
NOV	27	350	2.1	92	76	1500	.17		109			98				582
DEC	26	376	1.7	91	74	1500	.22		84			63				372
TOTAL	364	3954	-	-	-	-	-	-	1269	-	-	935	-	-	-	5562
AVG.	1.8 cu ft/ml gal		2.0	154	104	1700	.25									

Digestion



DESIGN DATA

Project: Town of Tillsonburg WPCP
 Project No.: 1-0137-67
 Design Flow: 1.8 MGD
 BOD: Raw Sewage - 235 mg/l
 Removal 95%
 SS: Raw Sewage - 250 mg/l
 Removal 95%

PRIMARY TREATMENT

AIR DEGRITTER:
 Size, 13' x 15' x 10' swd
 Volume: 12,160 l. Gal. Detention: 9.7 min.

PRIMARY SEDIMENTATION:
 Two, Size 50.3' x 10' x 8' swd
 One, Size 50' x 20' x 8.25' swd
 Volume: (total) 102,000 l. Gal.
 Detention: 1.3 hours
 Overflow Rate: 900 gal/ft²/day

SECONDARY TREATMENT

AERATION TANKS:
 Type: Diffused Air
 Size: Four, size 50' x 30' x 13' swd
 Volume (total): 487,000 l. Gal.
 Detention: (total) 6.5 hours

SECONDARY SEDIMENTATION:
 Size: Two, size 50.3' x 10' x 12.25' swd
 One, size 65' x 20' x 12.5' swd
 Volume (total): 178,000 l. Gal.
 Detention (total) 2.4 hr.
 Overflow Rate: 780 gal/ft²/day

CHLORINATION:
 Chlorinator: Type: W & T A731
 Size: 400 lb/day

CHLORINE CONTACT CHAMBER:
 Size: 21' x 20' x 9.2' swd
 Volume: 24,000 l. Gal. Detention: 19 min.

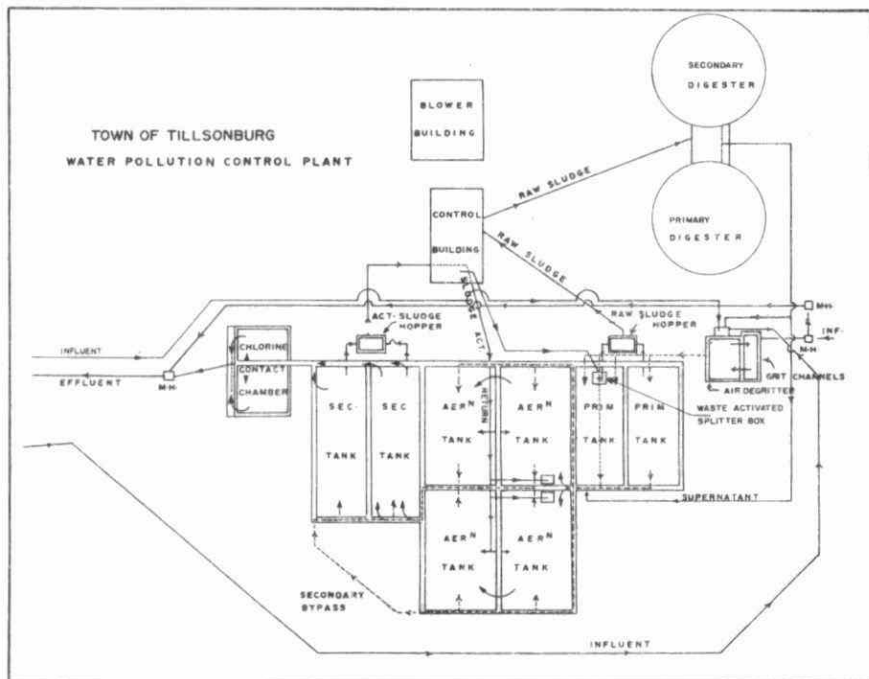
OUTFALL - to creek

SLUDGE HANDLING:
 Digestion System: Two-Stage
 Primary Digester: 45' dia. x 20' swd,
 Volume: 36,000 ft³
 Secondary Digester: 45' dia. x 20' swd,
 Volume: 36,000 ft³

PUMPING STATION:
 John Pound Street Pumping Station

Capacity: 2.7 MGD plus 50% standby

Screening and Comminution.

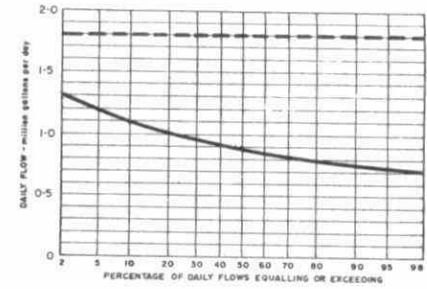
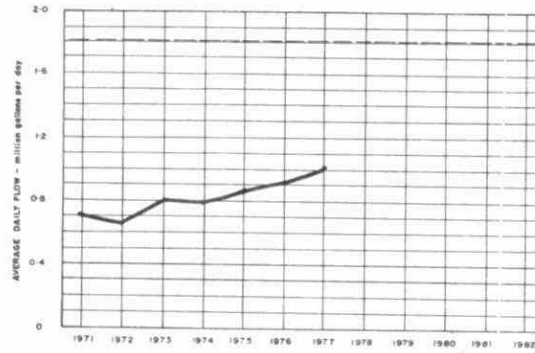


PLANT PERFORMANCE

TILLSONBURG WPCP

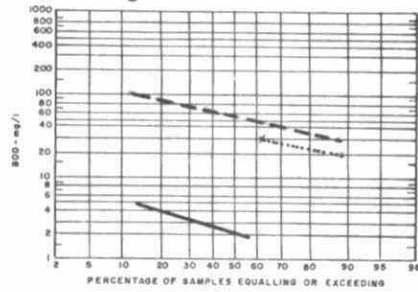
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	28.0	.90	.97	128	4	97	35	436	9	98	120	7.2	2.6
FEB	27.5	.98	1.13	102	2	98	27	178	6	97	47	7.2	0.5
MAR	34.0	1.09	1.46	80	4	95	26	184	4	98	61	5.7	0.5
APR	33.5	1.11	1.40	82	5	94	26	246	7	97	80	7.6	0.6
MAY	30.0	.96	1.17	100	8	92	28	171	7	96	49	8.5	0.6
JUNE	27.8	.92	1.08	88	3	97	24	212	4	98	58	6.0	0.4
JULY	27.8	.89	1.12	64	2	97	17	229	4	98	63	6.5	0.6
AUG	27.7	.89	1.11	154	2	99	42	241	5	98	65	7.5	0.4
SEPT	31.1	1.03	1.52	116	3	97	35	245	11	95	73	5.2	0.7
OCT	34.0	1.09	1.51	120	2	99	40	137	4	97	45	4.7	0.4
NOV	30.0	1.00	1.20	98	2	98	29	199	6	96	58	10.2	0.4
DEC	37.6	1.21	1.49	128	2	99	48	183	71	61	42	7.2	0.4
TOTAL	369.0	-	-	-	-	-	376	-	-	-	727	-	-
AVG		1.01	1.52	105	3	97	31	207	10	95	60	7.0	0.7
No. of Samples	-	-	-	12	12	-	-	57	56	-	-	12	12

PROCESS DATA FLOWS



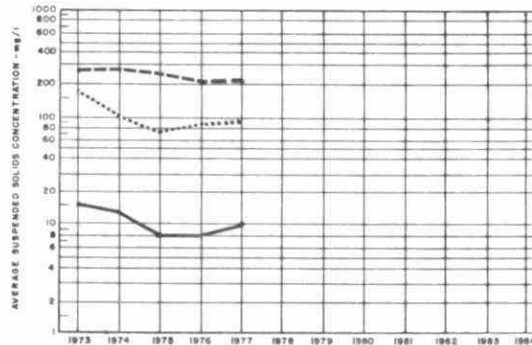
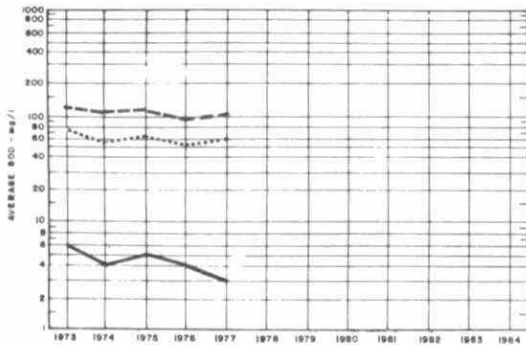
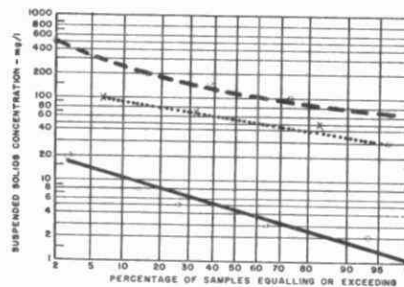
DESIGN CAPACITY -----

BOD₅



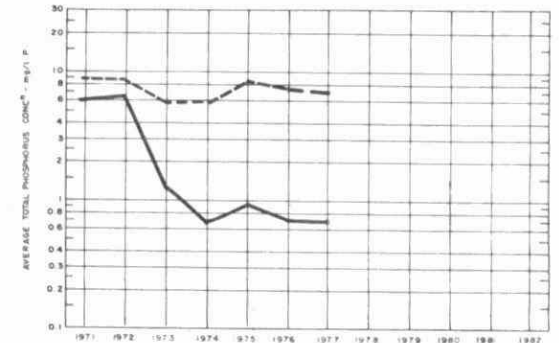
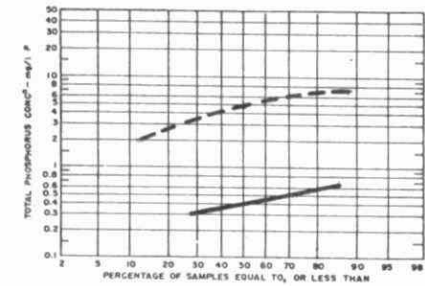
PLANT INFLUENT -----
 PRIMARY EFFLUENT
 PLANT EFFLUENT _____

Susp. Solids



PLANT INFLUENT -----
 PLANT EFFLUENT _____

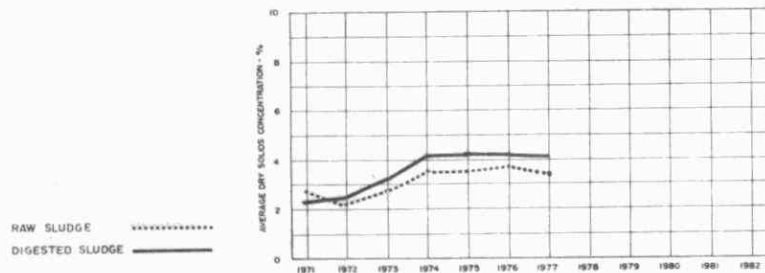
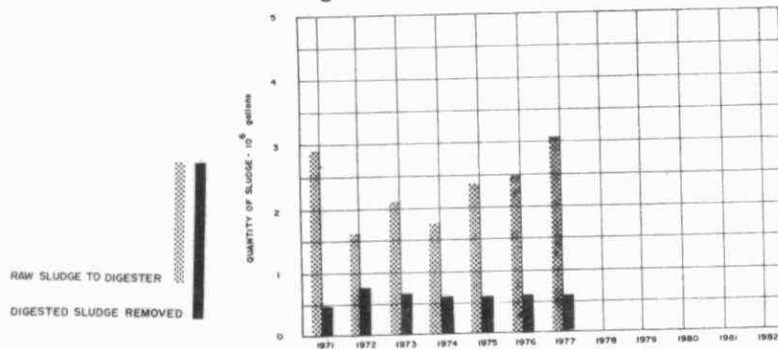
Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		Cl ₂ USED pounds	AVG DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb/1000	RAW SLUDGE			DIGESTED SLUDGE			SUPER- NATANT T.S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %		
JAN	34	602	2.1	74	168	1900	.02		257	3.4	66		3.6	52	.6	
FEB	27	617	2.2	60	93	2200	.016		240	3.2	62	42	4.2	49	1.2	251
MAR	58	718	2.1	78	99	2300	.012		257	3.9	59	64	4.8	43	.8	380
APR	51	734	2.2	54	107	2000	.05	2.8	251	4.1	57	60	3.9	50	1.5	356
MAY	43	678	2.2	56	102	2000	.05	3.3	267	3.7	58	36	5.5	48	1.9	214
JUNE	37	591	2.1	52	114	2000	.04	3.3	270	3.8	61	86	4.3	50	1.4	510
JULY	42	602	2.2	42	79	1900	.03	4.2	292	3.2	58	80	4.4	50	1.6	475
AUG	61	580	2.1	58	119	1800	.05	3.1	290	3.6	56	112	4.0	51	.8	665
SEPT	35	564	1.8	48	72	2600	.03	3.3	237	3.5	57	38	3.8	50	.5	226
OCT	42	709	2.1	62	59	1900	.013		243	3.6	57	101	4.0	49	.5	599
NOV	24	760	2.5	58	78	2000	.05		236	3.5	67	54	3.9	49	2.3	321
DEC	41	718	1.9	78	73	2400	.008		244	3.5	60	58	3.8	52	2.4	344
TOTAL	495	7873	-	-	-	-	-	-	3084	-	-	731	-	-	-	4341
AVG.	1.3 <small>cu ft/m³ gal</small>		2.1	60	98	2100	.031	3.3		3.5	59		4.1	49	1.2	

Digestion



DESIGN DATA

PROJECT: Vanastra WPCP

PROJECT NO: 2-1003-73

DESIGN FLOW: 0.45 MGD

SECONDARY SEDIMENTATION

Type: Two, square
 Size: 21' x 21' x 9.75' awd
 Volume: (total) 53,800 I.G.
 Retention: 2.9 hr

COMMINUTOR

One

GRIT REMOVAL

none

PRIMARY SEDIMENTATION

Type: One, circular
 Size: 30' i.d x 8' awd
 Volume: 35,300 I.G.
 Retention: 1.9 hr

Loading:

- Surface 758 I.G./ft²/day
- Weir 5233 I.G./ft/day

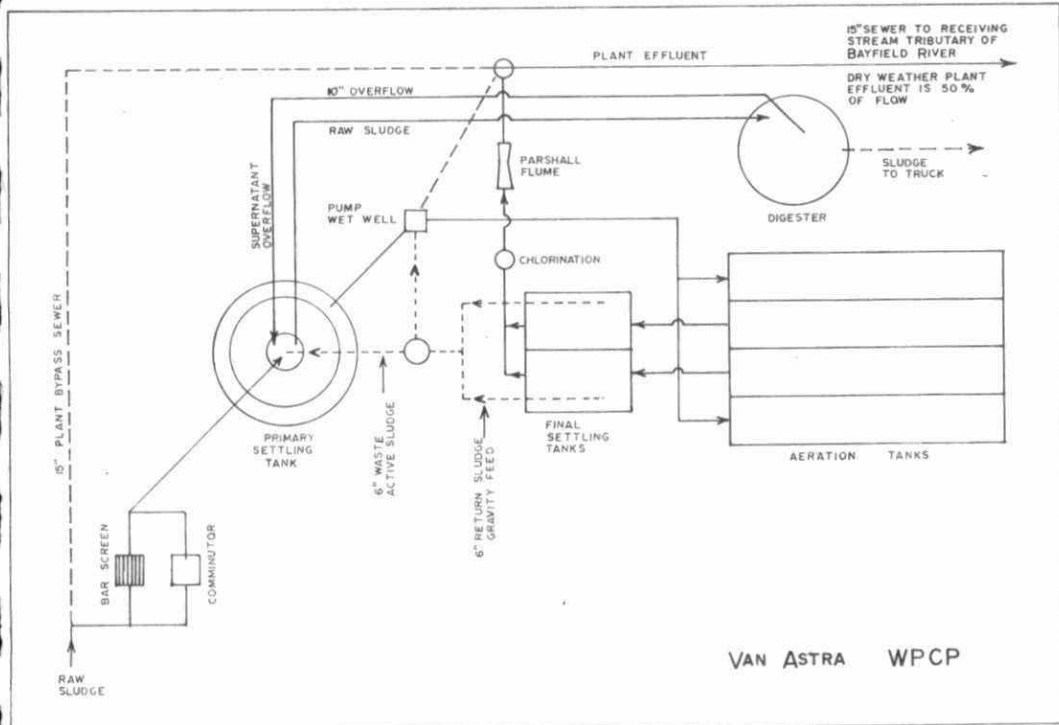
AERATION TANKS

Type: Two, rectangular
 Size: each 60' x 10' x 10' awd
 Volume (total): 74,800 I.G.
 Retention: 4.0 hr

BLOWERS

Type: Two, positive displacement
 Size: One, 450 cfm

One, 400 cfm

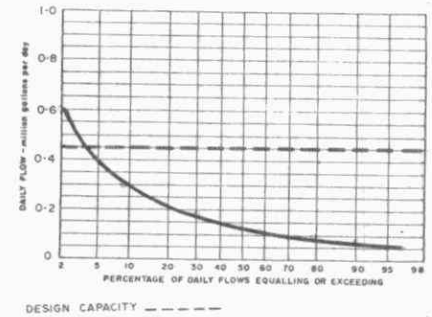
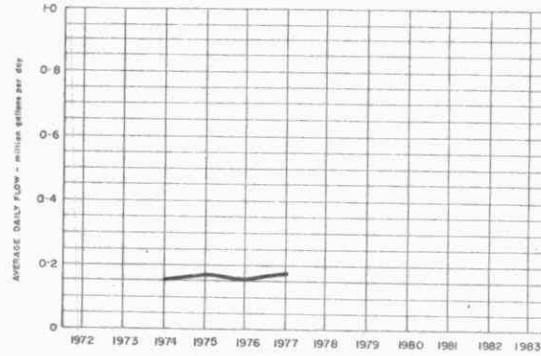


PLANT PERFORMANCE

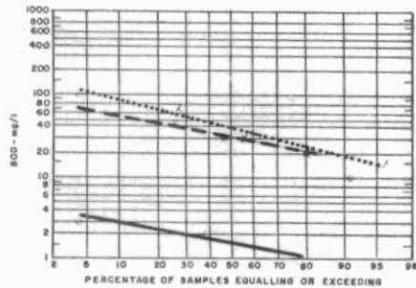
VAN ASTRA WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND			SUSPENDED SOLIDS				PHOSPHORUS		
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT		
	million gallons	mil. gal	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P	mg/l P		
JAN	4.1	.13	.15	85	4	95	3.3	101	6	94	1.0		
FEB	4.2	.14	.22	87	3	96	2.7	97	5	95	3.8	0.5	
MAR	7.2	.23	.50	32	1	97	2.2	40	12	70	2.0	0.1	
APR	5.0	.16	.21	32	3	91	1.5	43	6	86	1.9	2.5	
MAY	4.6	.14	.15	32	1	97	1.4	55	9	84	2.1	0.3	
JUNE	6.7	.22	.49	63	2	97	4.1	82	12	85	4.7	0.3	
JULY	3.3	.10	.35	87	3	96	2.8	88	8	90	2.6	0.3	
AUG	4.4	.14	.26	52	2	96	2.2	40	3	92	1.6	3.1	
SEPT	8.3	.27	1.63	64	2	96	5.1	60	26	56	2.8	3.3	
OCT	4.4	.14	.54	45	3	93	1.8	40	10	75	1.3	2.2	
NOV	4.4	.14	.36	20	2	90	.8	41	9	78	1.4	1.9	
DEC	6.3	.20	.41	38	3	92	2.2	39	9	76	1.9	3.0	
TOTAL	62.9	-	-	-	-	-	31.4	-	-	-	33.3	-	-
AVG.		.17	1.63	52	2	96	3.0	61	8	86	3.0	0.4	
No. of Samples	-	-	-	22	22	-	-	22	22	-	-	16	18

PROCESS DATA FLOWS

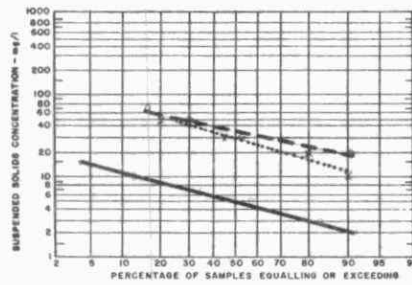


BOD₅

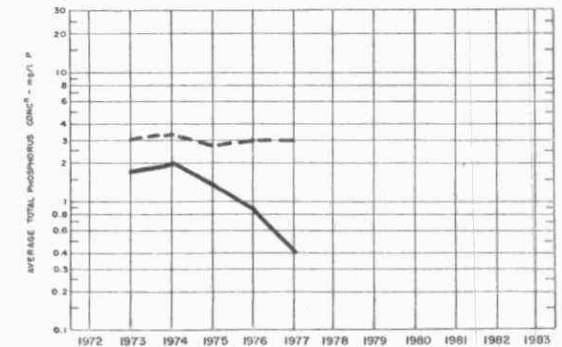
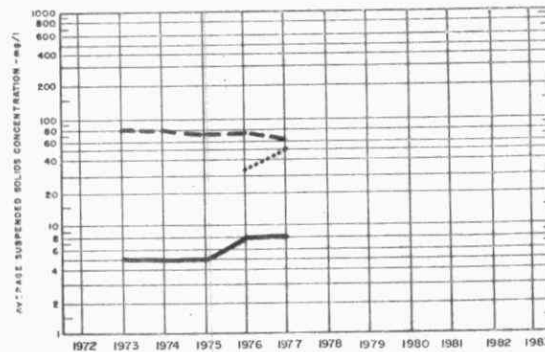
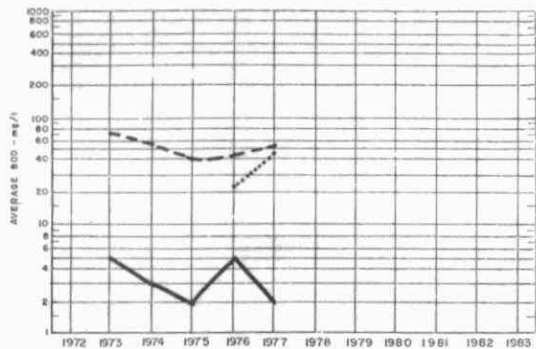
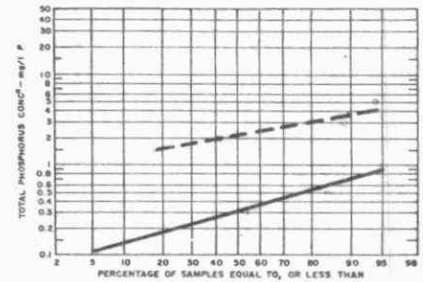


PLANT INFLUENT - - - - -
PRIMARY EFFLUENT
PLANT EFFLUENT _____

Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL						
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD	RAW SLUDGE		DIGESTED SLUDGE		SUPER-NATANT T.S. %	AMOUNT HAULED cubic yards	
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	QUANTITY 10 gallons	TOTAL SOLIDS %			
JAN		82	2.0	73	71	1700	.04	5.6	4.4						
FEB		100	2.4	57	76	3500	.03	2.9	4.0						
MAR		205	2.8	60	40	1900	.10	1.6	9.7						
APR		96	1.9	30	44	3500	.009	11.3	4.3						
MAY		100	2.1	24	55	5600	.003	15.6	4.7						
JUNE		88	1.3	40	52	4300	.013	5.9	4.3						
JULY		52	1.6	51	69	5500	.006	10.4	4.4						
AUG		70	1.6	60	80	4200	.013	6.1	4.4						
SEPT		105	1.3	60	48	6700	.016	3.1	1.6						
OCT		102	2.3	25	18	5100	.004	16.1	2.1						
NOV		107	2.4	26	33	2800	.008	14.7	3.4						
DEC		140	2.2	32	38	3000	.014	8.6	4.2						
TOTAL		1247	-	-	-	-	-	-	51.5	-	-	-	-	-	
AVG.	cc ft/mi gal	104	2.0	45	50	4000	.021	8.4							

DESIGN DATA

PROJECT Town of Wallaceburg WPCP
 PROJECT NO. 1-0087-67
 DESIGN POPULATION 13,500
 DESIGN LOADING 1.5 IMGD
 DESIGN BOD LOADING 3,000 lb/day
 DESIGN SS LOADING 3750 lb/day

COMMUNITION

No. of units - 1
 Type: Barminutor

GRIT REMOVAL

No. of tanks - 1
 Type: Aerated by diffusers

PRIMARY SEDIMENTATION

No. of tanks - 2
 Tank dimensions: 16'x48'x14.5' each
 Detention: 2.22 hours

AERATION

No. of tanks - 2
 Type: aerated by diffusers
 Tank dimensions: 16'x106'x13.25' each
 Detention: 4.49 hours

SECONDARY SEDIMENTATION

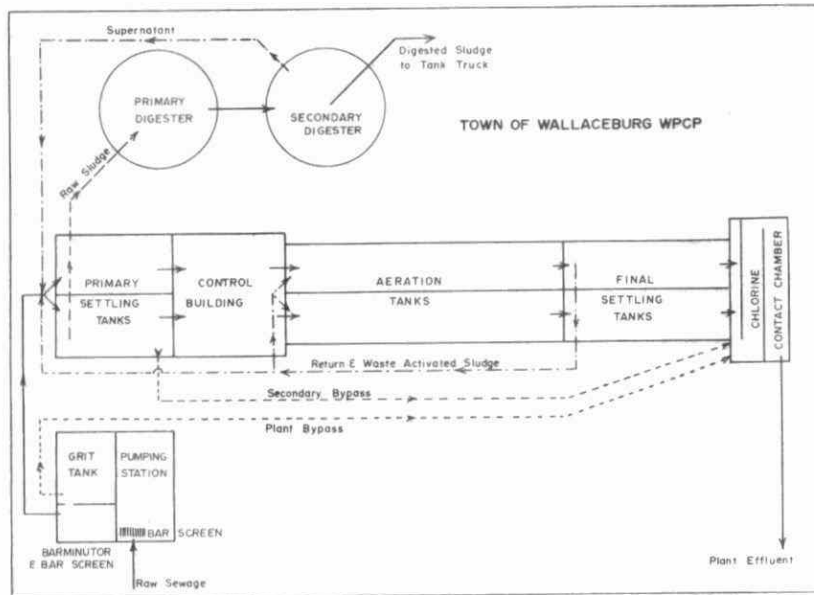
No. of tanks - 2
 Tank dimensions: 72'x16'x12.5' each
 Detention: 2.68 hours

CHLORINATION

No. of tanks - 1
 Detention: 21.8 min.

SLUDGE DIGESTION

No. of tanks - 2
 Tank dimensions: one @ 35' dia x 19'
 one @ 35' x 18.5'
 Total Detention: 21.1 days

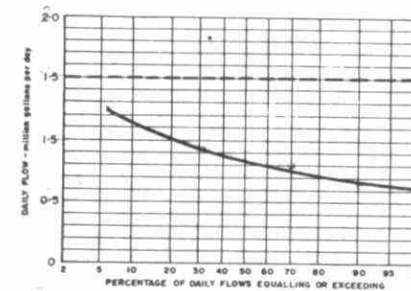
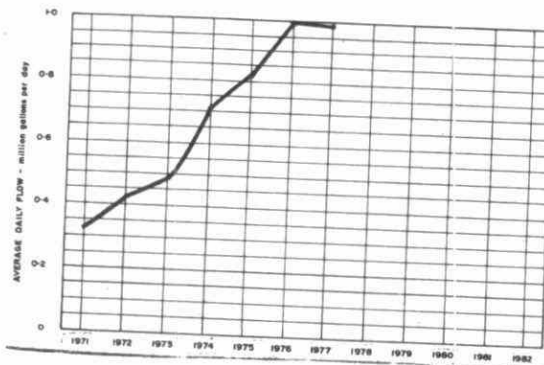


PLANT PERFORMANCE

WALLACEBURG WPCP

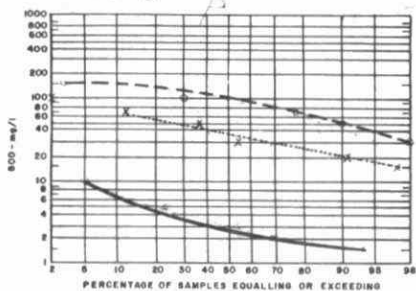
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT		
	million gallons	mil. gal	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P	mg/l P		
JAN	21.1	.67	.75	130	7	95	26	132	11	92	25	6.5	1.1
FEB	22.6	.80	1.71	141	8	94	30	167	9	95	36	6.5	1.1
MAR	41.8	1.34	2.22	116	6	95	46	128	10	92	49	5.5	0.9
APR	37.3	1.24	1.96	122	5	96	44	173	9	95	61		0.9
MAY	27.5	.88	1.14	123	6	95	32	178	6	97	47		1.0
JUNE	26.1	.86	1.18	133	8	94	33	226	5	98	58	6.5	1.2
JULY	28.0	.90	1.82	158	4	97	43	150	4	97	41		1.0
AUG	28.0	.90	1.08	118	2	98	33	157	5	96	43	5.0	0.9
SEPT	28.7	.92	1.51	125	4	96	35	177	5	97	49	5.0	1.1
OCT	28.9	.93	1.08	100	4	96	28	164	3	98	46	4.7	1.3
NOV	27.9	.93	1.25	116	3	97	31	215	8	96	58	6.3	0.7
DEC	44.2	1.42	2.45	122	3	97	52	161	8	95	67	4.3	0.8
TOTAL	362.1	-	-	-	-	-	438	-	-	-	590	-	-
AVG.		.99	MAXIMUM 2.45	125	4	96	36	169	6	96	49	5.6	0.9
No. of Samples	-	-	-	53	52	-	-	256	259	-	-	17	33

PROCESS DATA FLOWS



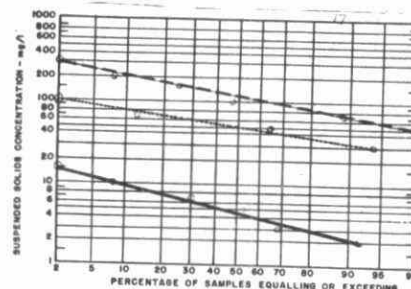
DESIGN CAPACITY 1.5 MGD

BOD₅

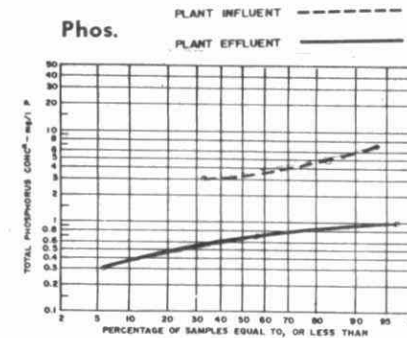


PLANT INFLUENT - - - - -
PRIMARY EFFLUENT
PLANT EFFLUENT - - - - -

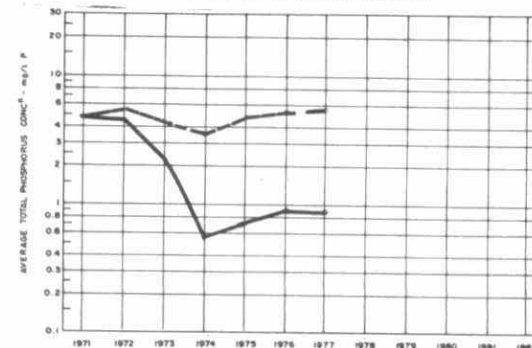
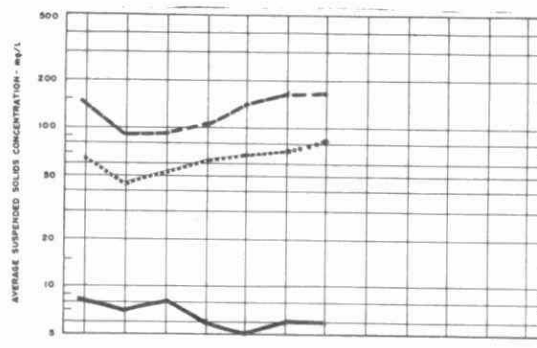
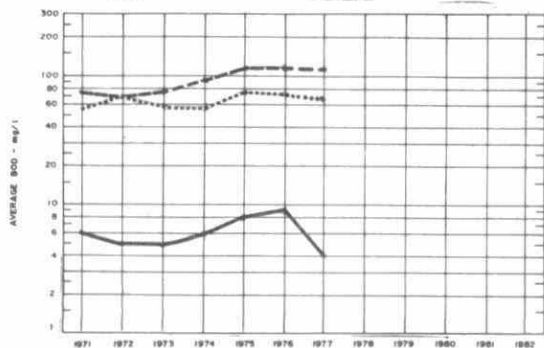
Susp. Solids



Phos.



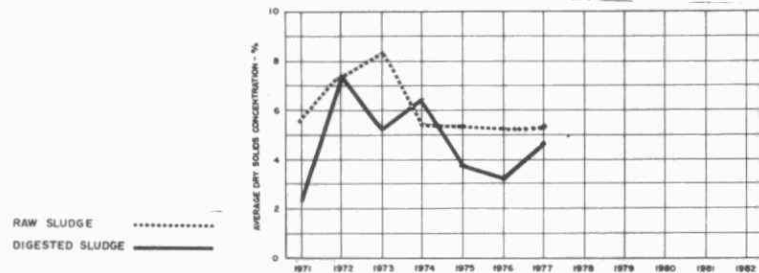
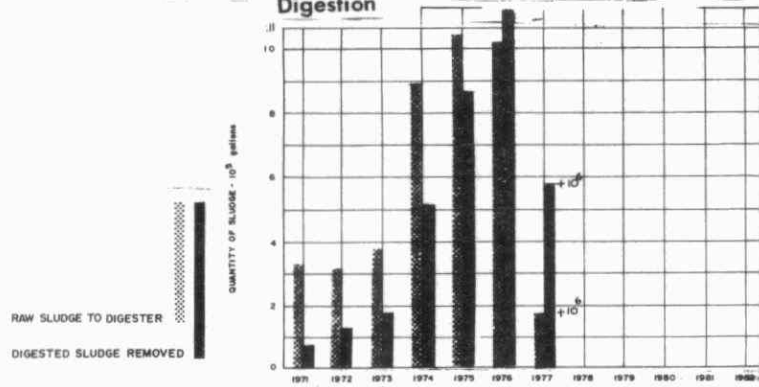
PLANT INFLUENT - - - - -
PLANT EFFLUENT - - - - -



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL						
		Cl ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M	AIR 1000 ft ³ lb/1000	RAW SLUDGE		DIGESTED SLUDGE		SUPER-NATANT T.S. %	AMOUNT HAULED cubic yards	
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %			
JAN		.8	4.0	47	97	1500	.10	6.0	117	3.6	65	102	2.9	44	605
FEB	120	.7	3.1	141	167	1400	.57	1.3	98	4.5	66	147	5.2	46	872
MAR		1.0	2.3	56	73	1700	.31	1.9	80	6.8	52	111	7.9	37	659
APR	153	.9	2.4	47	94	2300	.18	2.5	85	6.2	49	123	9.3	39	729
MAY	100	.9	3.2	32	83	2300	.08	5.6	107	7.3	48	96	4.9	35	569
JUNE	105	1.3	4.9	81	74	2100	.11	2.4	93	6.1	52	108	4.7	36	641
JULY	290	1.4	4.9	101	73	2300	.30	1.6	99	6.7	50	108	5.8	36	640
AUG		1.3	4.6	70	73	2200	.20	2.3	103	4.7	51	114	4.1	40	675
SEPT	121	1.6	5.6	81	74	2100	.20	1.7	122	4.4	56	139	3.3	43	827
OCT		1.8	6.7	68	61	2100	.20	2.0	103	4.2	54	147	2.7	41	868
NOV	60	1.7	6.3	52	65	2000	.17	2.8	80	4.7	61	39	2.6	41	228
DEC		1.7	4.0	42	70	2100	.20	2.3	81	6.5	49	343	3.6	40	2032
TOTAL	949	15.1	-	-	-	-	-	-	1168	-	-	1577	-	-	9345
AVG.	2.6 cu ft/wk per	1.3	4.2	68	82	2000	.21	2.7		5.4	54		4.7	39	

Digestion



REGION 2
West Central

DESIGN DATA

PROJECT City of Brantford WPCP

PROJECT NO. 2-0011-58
 TREATMENT Activated Sludge
 DESIGN FLOW 12.5 mgd
 DESIGN POPULATION 65,000
 BOD - Raw Sewage 170 mg/l
 - Removal 90%
 SS - Raw Sewage 175 mg/l
 - Removal 90%

PRIMARY TREATMENT

Screening

Type: Coarse bar screens
 Size: Two 5 in. spaces

Comminution

Type: infilco Rotogrator
 Size: Two No. 43 (8 mgd ea)

Raw Sewage Pumps

Type: Fairbanks-Morse
 Size: Four 3840 gpm ea @ 45' t/dh

Grit Removal

Type: Dorr Detritor, Type WA
 Size: Two 20' x 20' x 1'-3"
 Flow Velocity: 1 fps
 Retention: 0.725 min

Primary Sedimentation

Type: Eimco, Type C
 Size: Four 70' dia x 10' swd
 Retention: 2 hours
 Loading: Surface, 812 gal/ft²/day
 Weir, 14,200 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Two triple-pass tanks
 ACM mech aerators in
 first pass; Diffused air
 in 2nd and 3rd passes.

Size of pass, 200' x 30' x 15'
 Retention: 7.5 hr

Air Supply

Type: Sutorbilt blowers
 Size: Three 4300 cfm

Secondary Sedimentation

Type: Eimco, Type C
 Size: Four 70' dia x 10' swd
 Retention: 2 hr
 Loading: Surface, 812 gal/ft²/day
 Weir, 14,200 gal/ft/day

CHLORINATION

Chlorinator

Type: Fischer & Porter Manual
 adjustment - liquid chlorine
 evaporator

Chlorine Contact Chamber

Size: 51' x 18' x 7'
 Retention: 5 min

OUTFALL

Grand River

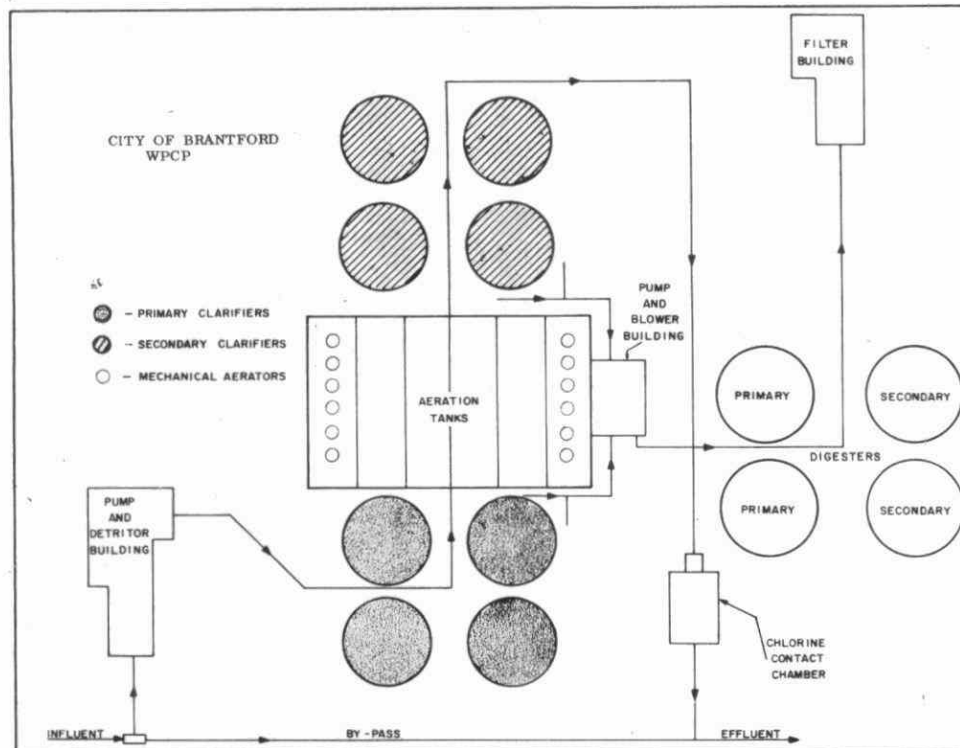
SLUDGE HANDLING

Digestion System

Type: Two-stage
 Primary: Two 55' dia tanks with two
 D-O-L mixers each
 Volume 49,300 cu ft or
 300,000 gal (each tank)
 Loading 6.1 lb/ft³/mo
 Secondary: Two 70' dia tanks with
 Dorr floating covers
 Volume 97,200 cu ft or
 600,000 gal (each tank)
 Total Loading: 2.0 lb/ft³/mo

Vacuum Filter

Type: Komline-Sanderson coil filters
 Size: Two 350 sq ft filters

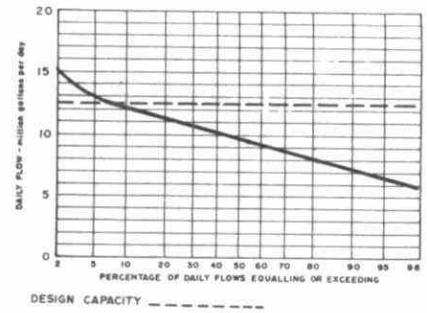
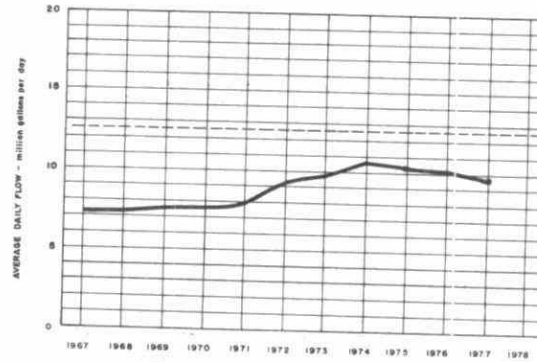


PLANT PERFORMANCE

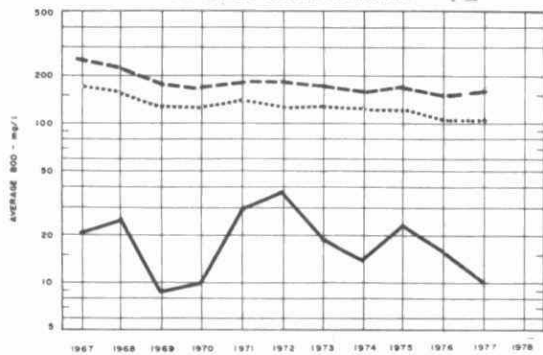
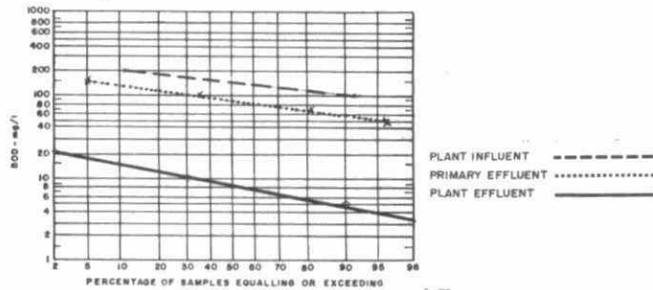
BRANTFORD WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT		
	million gallons	mil. gal	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P	mg/l P		
JAN	249	7.8	9.5	174	8	95	413	287	21	93	662	6.2	1.3
FEB	232	8.4	8.9	152	7	95	336	268	18	93	580	5.9	1.4
MAR	300	9.6	17.5	142	9	94	399	232	19	92	638	7.1	1.5
APR	305	10.2	11.8	156	10	94	445	202	16	92	567	6.2	1.3
MAY	291	9.4	11.1	163	10	94	445	290	12	96	809	7.0	1.2
JUNE	275	9.2	12.0	182	6	97	484	269	7	97	720	7.6	1.1
JULY	259	8.4	11.6	130	6	95	322	228	10	96	306	7.0	1.4
AUG	276	8.9	10.5	169	8	95	445	237	14	94	616	7.1	1.5
SEPT	291	9.7	12.3	162	16	90	424	278	14	94	747	6.6	1.6
OCT	340	11.0	12.7	134	13	90	412	319	27	92	993	7.8	1.3
NOV	322	10.7	12.9	165	7	96	508	297	13	96	914	7.5	1.8
DEC	411	13.2	15.9	162	13	92	612	214	22	90	789	7.2	1.2
TOTAL	3551	-	-	-	-	-	5220	-	-	-	8664	-	-
AVG.	296	9.7	MAXIMUM 17.5	157	10	94	43	260	16	94	722	6.9	1.4
No. of Samples	-	-	-	96	105	-	-	244	246	-	-	91	188

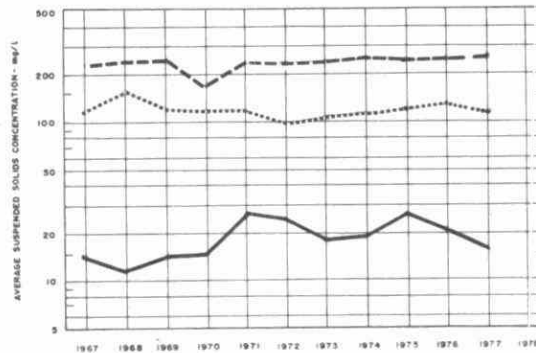
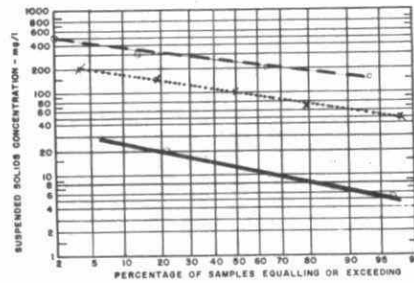
FLOWS



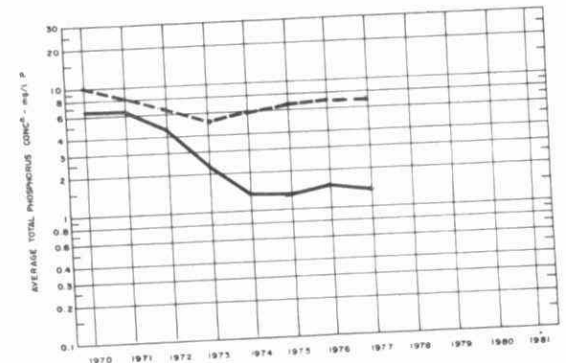
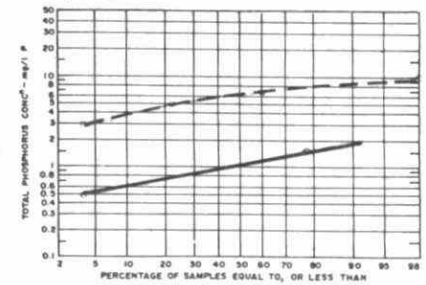
BOD₅



Susp. Solids

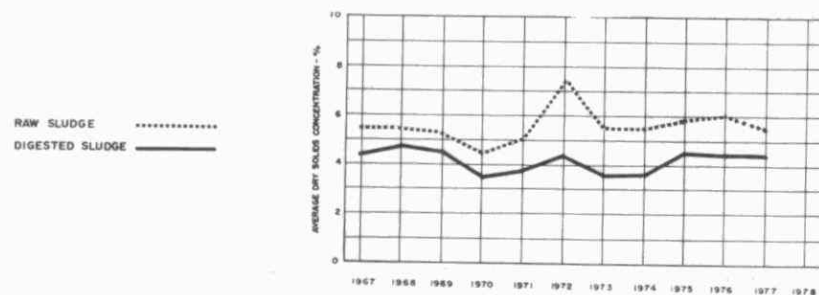
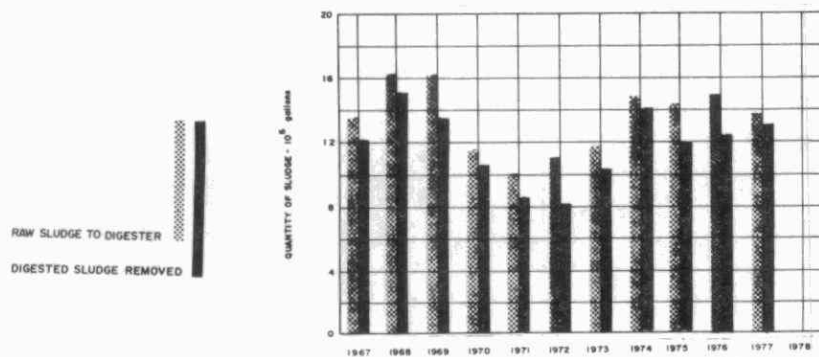


Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
	QUANTITY REMOVED cubic feet	CL ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M	AIR 1000 ft ³ /15 BOD day ⁻¹	RAW SLUDGE QUANTITY 10 ⁶ gallons	SLUDGE TOTAL SOLIDS %	VOL SOLIDS %	DIGESTED SLUDGE QUANTITY 10 ⁶ gallons	SLUDGE TOTAL SOLIDS %	VOL SOLIDS %	SUPER-NATANT T.S. %	AMOUNT HAULED cubic yards
JAN	254	9.9	3.9	132	100	2400	.13		1.1	5.6	75	1.2	4.2	61		6852
FEB	253	8.6	3.7	100	103	2200	.12		1.2	5.4	73	1.2	4.7	60		6987
MAR	323	9.9	3.3	91	102	2900	.91		1.2	6.6	66	1.1	4.6	57		6717
APR	314	8.5	2.8	108	96	2200	.15		1.1	5.9	67	1.2	4.3	53	.6	6919
MAY	239	11.4	3.9	76	115	1900	.11		1.0	6.5	65	1.0	3.5	55		6124
JUNE	299	10.1	3.7	102	110	2000	.14		1.1	5.3	67	1.2	4.0	55	.5	6835
JULY	262	10.9	4.2	74	98	2000	.09		1.0	5.7	60	.9	5.4	51	1.0	5572
AUG	372	10.1	3.7	94	102	2400	.09		1.0	4.7	66	1.0	5.3	53	.4	6168
SEPT	478	11.0	3.8	134	169	2500	.16		1.3	4.6	66	.7	3.6	59	1.9	4148
OCT	411	12.4	3.7	97	170	2600	.12		1.3	5.1	66	1.2	4.6	56		7265
NOV	281	11.0	3.4	117	170	2000	.19		1.3	4.9	68	1.3	3.7	57		7466
DEC	455	12.1	2.9	137	101	1900	.29		1.1	5.6	68	1.0	4.3	57	.4	6498
TOTAL	3941	125.9	-	-	-	-	-	-	13.7	-	-	13.0	-	-	-	77551
AVG.	1.1 cu ft/ml gal	10.5	3.6	103	120	2300	.21		1.1	5.5	67	1.1	4.4	56	.8	6463



DESIGN DATA

PROJECT	City of Cambridge (Galt) WPCP
PROJECT NO.	1-0099-67
TREATMENT	Activated Sludge
DESIGN FLOW	8.5 mgd
DESIGN POPULATION	34,000
BOD - Raw Sewage - Removal	250 mg/l 90%
SS - Raw Sewage - Removal	250 mg/l 90%

PRIMARY TREATMENT

Comminution

Type: C. P. Barminator
Size: One Model C (36")

Raw Sewage Pumps

Type: Babcock-Wilcox
Size: Three 3500 gpm @ 30' tdh

Grit Removal

Type: Elmco Detritor
Size: One 18' x 18' x 2' deep
(4,000 gal)
Retention: 1.15 min

Primary Sedimentation

Type: (a) Dorr (old cl.)
(b) Elmco (new cl.)
Size: Two 60' dia x 9' swd
50,600 cu ft or 315,000 gal
Retention: 1.5 hours
Loading: Surface, 884 gal/ft²/day
Weir, 13,250 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Mechanical aeration
Single pass (5-cell)
Size: Four 150' x 30' x 13.7'
(234,000 cu ft or 1.46 mil gal)
Retention: 7.0 hours

Aerators

- Twenty Ames-Crosta

Secondary Sedimentation

Type: Elmco
Size: Two 75' dia x 10' swd
(88,400 cu ft or 550,000 gal)
Retention: 2.64 hours
Loading: Surface, 566 gal/ft²/day
Weir, 10,600 gal/ft/day

CHLORINATION

- One F & P Automatic

Chlorine Contact Chamber

Size: One 49.25' x 21.5' x 7.25'
(46,000 gal)
Retention: 13.25 min

OUTFALL

- to Grand River

SLUDGE HANDLING

Digestion System

Type: Two-stage

Primary --

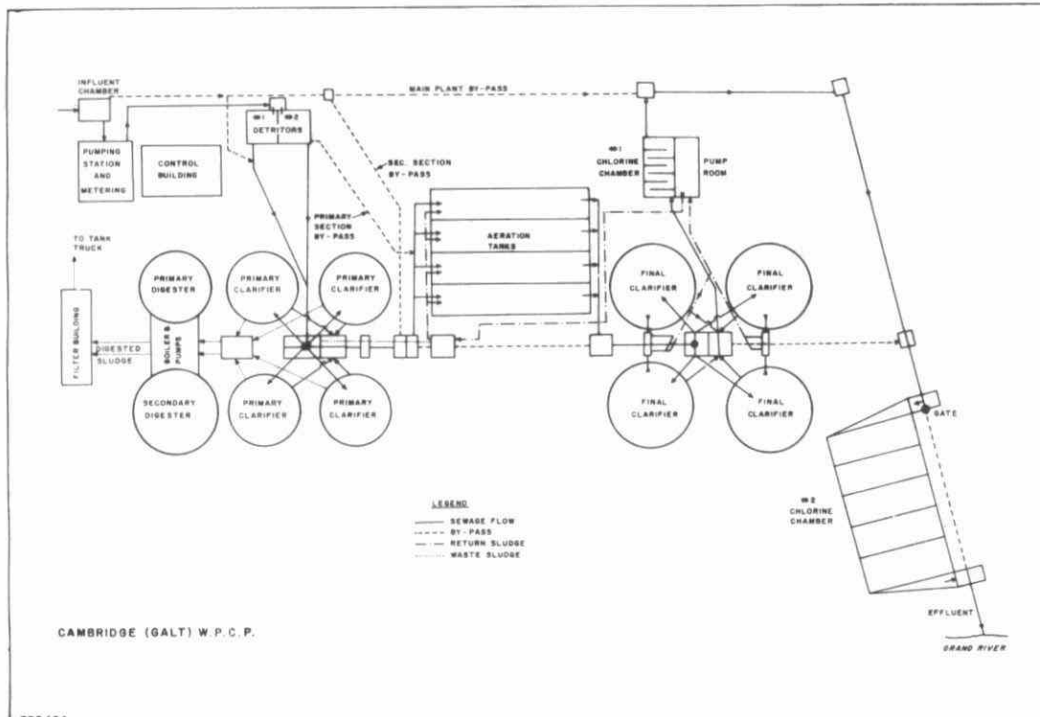
Type: Elmco draft tube mixers (2) on
concrete roof
Size: One 50' dia x 20' swd (30,300 cu
ft or 189,000 gal)

Secondary --

Size: One 70' dia x 20' swd (77,000 cu
ft or 480,000 gal)

Vacuum Filter

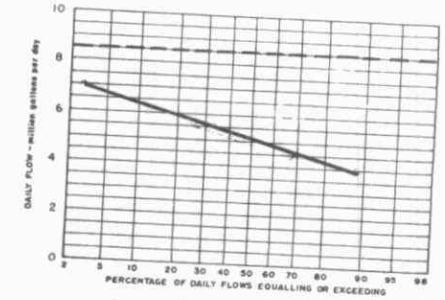
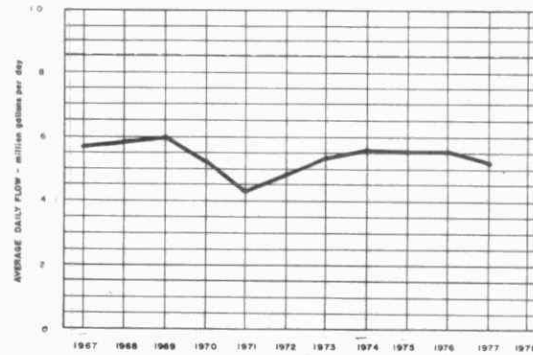
Type: Elmco (cloth)
Size: One, 380 sq ft



PLANT PERFORMANCE

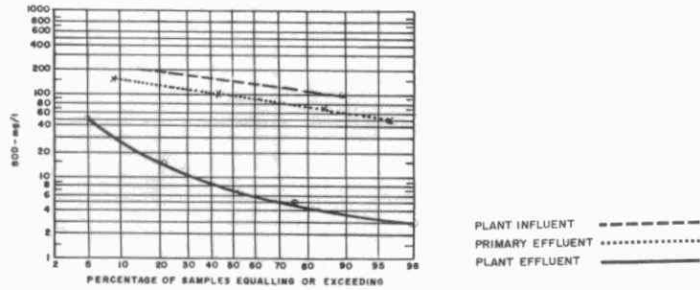
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	144	4.6	7.8	268	32	88	341	160	39	76	175	9.3	3.8
FEB	130	4.7	6.0	169	24	86	189	151	30	80	158	9.3	3.8
MAR	186	6.0	8.7	142	7	95	252	133	16	88	218	6.2	1.5
APR	161	5.4	6.4	168	16	90	245	135	10	93	201	5.6	1.9
MAY	148	4.8	5.3	143	9	94	198	169	7	96	240	6.3	2.2
JUNE	150	5.0	6.6	186	9	95	265	173	18	90	232	6.0	3.4
JULY	134	4.3	6.1	142	7	95	181	170	22	87	198	7.0	3.5
AUG	156	5.0	7.0	154	11	93	223	223	21	91	314	6.4	2.1
SEPT	173	5.8	8.0	196	33	83	282	200	11	95	327	6.4	2.3
OCT	182	5.9	7.2	161	10	99	289	200	21	90	325	5.9	1.8
NOV	162	5.4	6.4	155	11	93	234	153	17	89	221	4.9	1.6
DEC	171	5.5	7.1	159	8	95	258	164	9	95	265	4.5	0.8
TOTAL	1897	-	-	-	-	-	2978	-	-	-	2883	-	-
AVG.	158	5.2	MAXIMUM 8.7	170	13	92	248	170	18	89	240	6.3	2.1
No. of Samples	-	-	-	96	95	-	-	258	364	-	-	90	179

PROCESS DATA
FLOWS

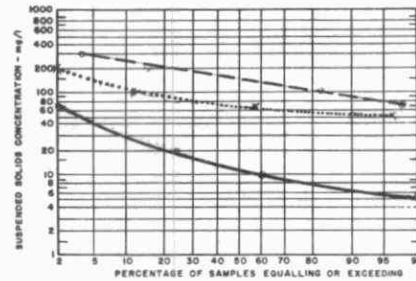


DESIGN CAPACITY - - - - -

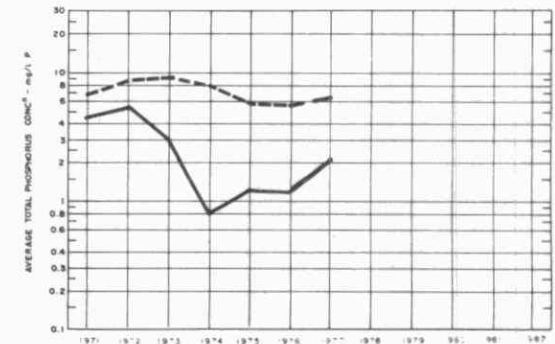
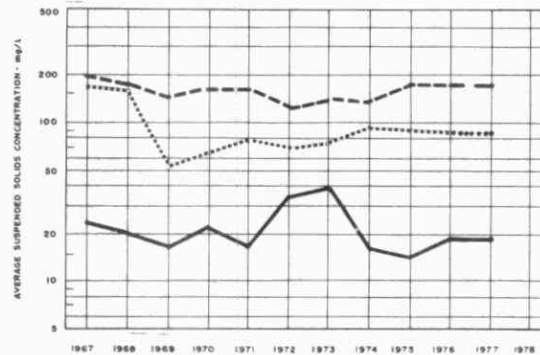
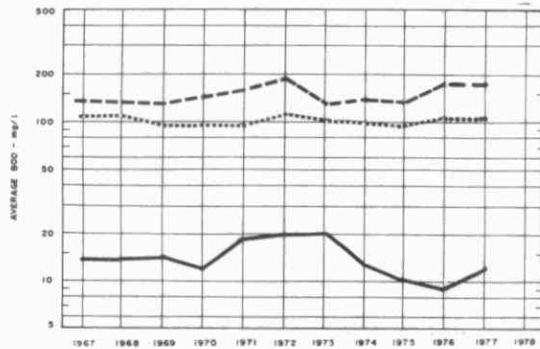
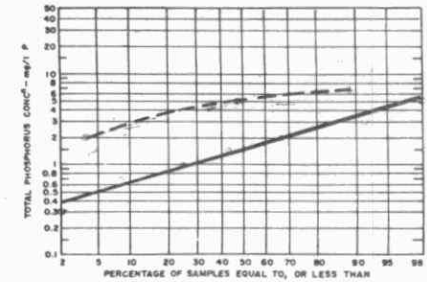
BOD₅



Susp. Solids

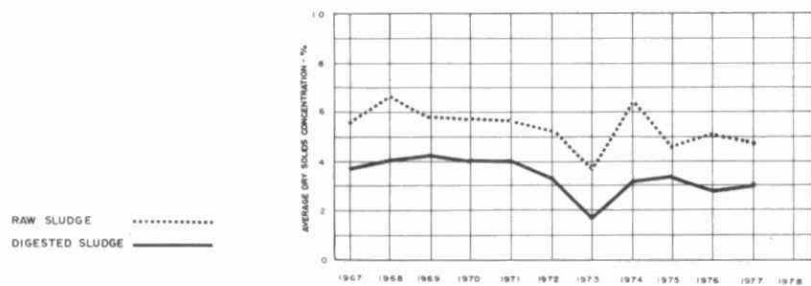
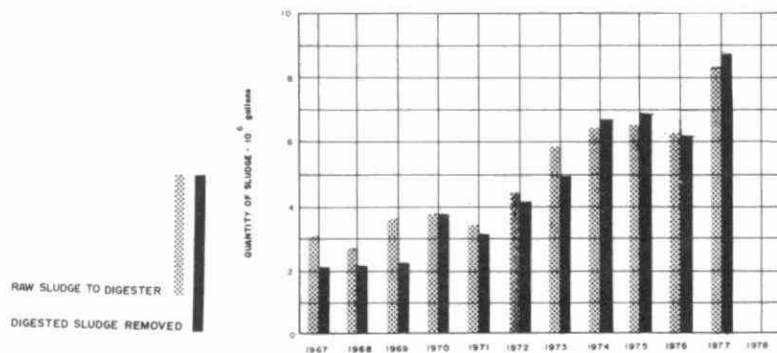


PLANT INFLUENT - - - - - Phos.
PLANT EFFLUENT - - - - -



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		Cl ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD	RAW SLUDGE	SLUDGE	DIGESTED SLUDGE		SUPER- NATANT T. S. %	AMOUNT HAULED cubic yards		
									QUANTITY 10 ⁶ gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 ⁶ gallons			TOTAL SOLIDS %	VOL SOLIDS %
JAN	216	6.9	4.8	139	93	2700	.16		.53	4.0	76	.46	2.6	55		2720
FEB	216	7.2	5.5	138	102	2500	.16		.53	4.4	71	.57	2.3	57		3408
MAR	108	6.2	3.4	96	95	3000	.13		.80	4.3	65	.77	3.4	51		4612
APR		5.6	3.5	128	90	3600	.13		.68	5.4	64	.57	4.5	49		3424
MAY	216	5.7	3.9	86	78	3800	.07		.60	4.3	67	.68	2.7	53		4048
JUNE	216	5.8	3.9	131	81	3800	.12		.59	5.9	66	.56	2.9	54		3312
JULY	162	6.0	4.5	71	61	2900	.07		.62	5.1	62	.67	3.1	56		4048
AUG	162	5.8	3.7	106	77	2900	.13		.60	4.0	60	.65	3.1	53		3852
SEPT	54	6.4	3.7	148	128	3000	.19		.61	5.1	63	.62	2.1	50		3673
OCT		6.1	3.4	107	85	3000	.14		1.03	4.6	68	1.15	2.9	57		7023
NOV		4.2	2.6	97	84	2600	.14		.79	4.9	70	1.01	3.0	59		6028
DEC		3.8	2.2	93	86	2600	.16		.92	4.7	67	1.06	3.2	59		6336
TOTAL	1350	69.7	-	-	-	-	-	-	8.30	-	-	8.77	-	-	-	52484
AVG.	.7 cu. ft/mc gal	5.8	3.7	109	88	3000	.13		.69	4.7	67	.73	3.0	54		4374



DESIGN DATA

PROJECT City of Cambridge
(Preston) WPCP
PROJECT NO. 1-0134-67
TREATMENT Activated Sludge
DESIGN FLOW 3.71 mgd

BOD - Raw Sewage
- Removal 17,500 lb.
SS - Raw Sewage
- Removal 17,500 lb.

PRIMARY TREATMENT

Grit Removal

Type: Dorr detritor
Size: One 20' x 20' x 1 1/2' (3,740 gal)
Retention: 2.1 min

Comminution

Type: Barminutor
Size: Model C (36")

Primary Sedimentation

Type: Dorr
Size: Four 50' dia x 10' swd
(492,000 gal)
Retention: 3.2 hr
Loading: Surface, 460 gal/ft²/day
Weir, 5730 gal/ft/day

Sewage Lift Pumps

Type: Worthington
Size: Two 2580 gpm
One 1800 gpm

SECONDARY TREATMENT

Aeration Tanks

Type: Mechanical; single-pass
Size: Two 150' x 30' x 13'
(731,000 gal)
Retention: 4.7 hr

Aerators

- Ten Ames-Crosta X 25 HP

Secondary Sedimentation

Type: Dorr
Size: Four 50' dia x 10' swd
(492,000 gal)
Retention: 3.2 hr
Loading: Surface, 460 gal/ft²/day
Weir, 5730 gal/ft/day

CHLORINATION

Type: F & P
Size: One 400 lb/day

Chlorine Contact Chamber

Size: One 30' x 15' x 6' 8"
(18,700 gal)
Size: one 50' x 30' x 6' 8"
(58,600 gal)
Retention: (both) 30 min.

OUTFALL

- to Grand River

SLUDGE HANDLING

Holding Tank

Size: One 20' x 20' x 11'
(4,400 cu ft or 27,400 gal)

Digestion System

- Two-Stage

Primary Digester

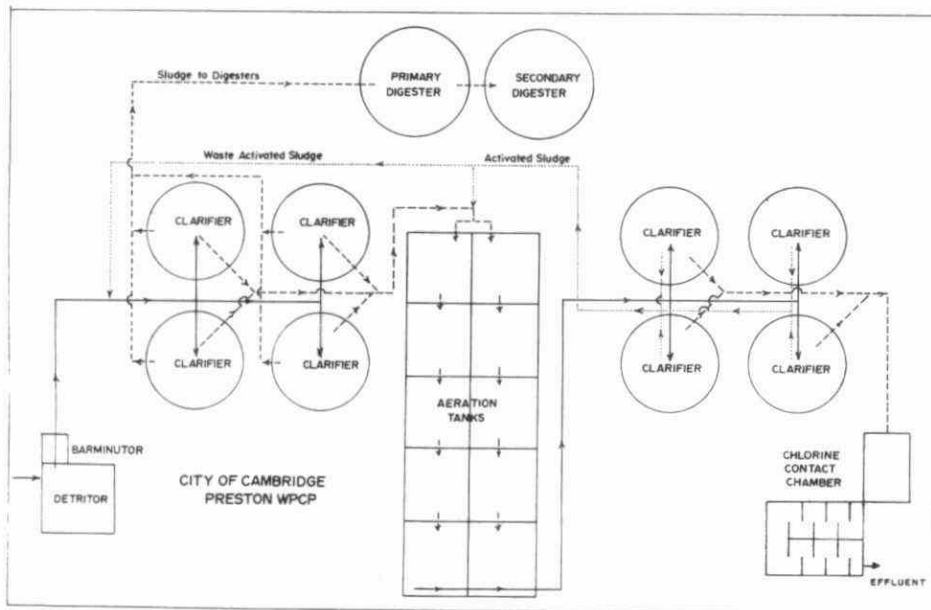
Size: One 50' dia x 38' awd
(79,800 ft³)

Secondary Digester

Size: One 50' dia x 38' awd
(79,800 ft³)

Sludge Recirculating Pump

Type: Carter Duplex Mod 805
Size: 200 gpm at 40' TDH

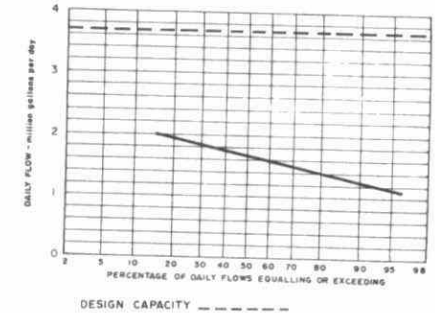
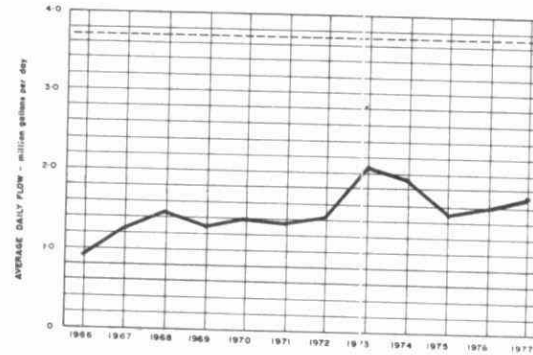


PLANT PERFORMANCE

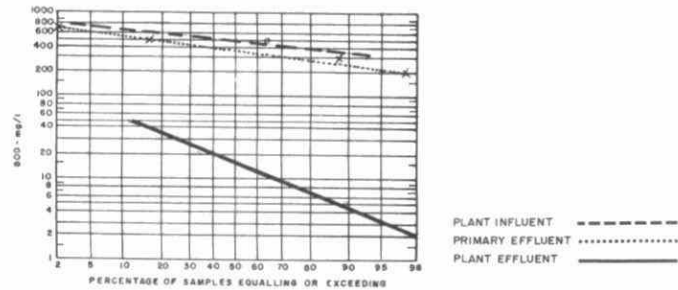
CAMBRIDGE (PRESTON) WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ⁵ pounds	mg/l P	mg/l P
JAN	41.6	1.3	1.8	695	53	92	268	597	85	86	213		3.1
FEB	40.1	1.5	1.5	598	51	91	225	774	25	97	308		1.5
MAR	55.8	1.8	2.3	479	5	99	264	569	15	97	308	9.3	0.8
APR	44.3	1.4	1.9	464	8	98	210	636	47	93	272	7.9	0.7
MAY	44.2	1.5	2.0	539	14	97	246	590	31	95	262	8.5	0.7
JUNE	53.0	1.8	2.2	547	21	96	279	698	79	89	328	5.0	0.6
JULY	50.6	1.6	2.2	514	21	96	249	608	46	92	284	5.5	0.7
AUG	53.6	1.7	2.3	535	30	94	269	530	71	87	244	6.2	1.3
SEPT	55.0	1.8	2.5	513	20	96	271	335	42	87	161	6.4	1.1
OCT	59.1	1.9	2.2	389	18	95	217	490	81	83	239	6.0	0.6
NOV	56.2	1.9	2.2	516	9	98	282	563	12	98	306	5.5	0.5
DEC	63.4	2.0	2.6	516	6	99	317	398	12	97	240	4.4	0.5
TOTAL	617.7	-	-	-	-	-	3089	-	-	-	3255	-	-
AVG	51.5	1.7	2.6	519	19	96	257	568	41	93	271	6.0	0.9
No. of Samples	-	-	-	65	65	-	-	239	237	-	-	51	77

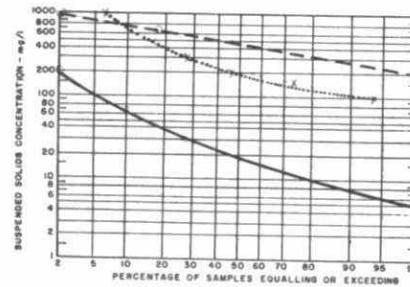
PROCESS DATA FLOWS



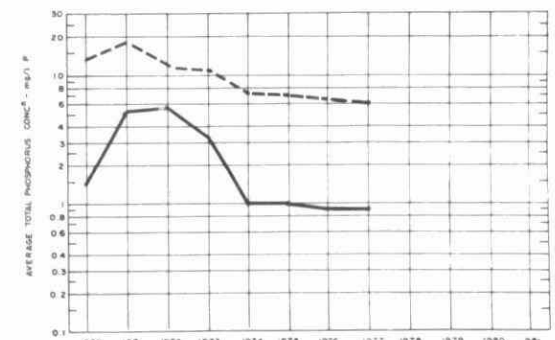
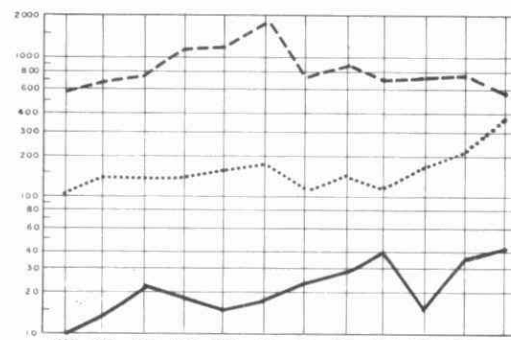
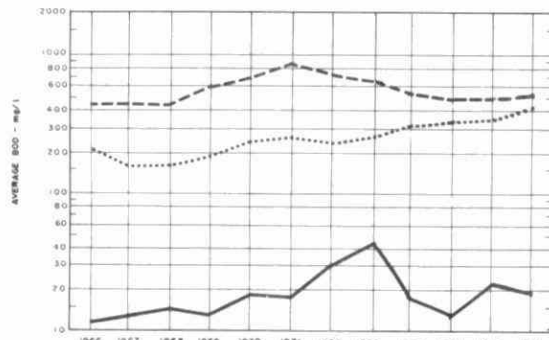
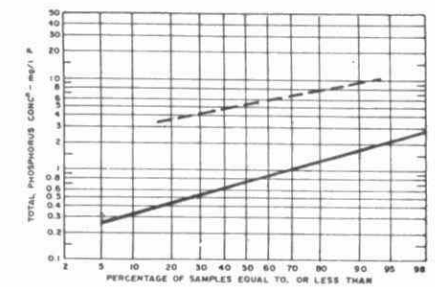
BOD₅



Susp. Solids



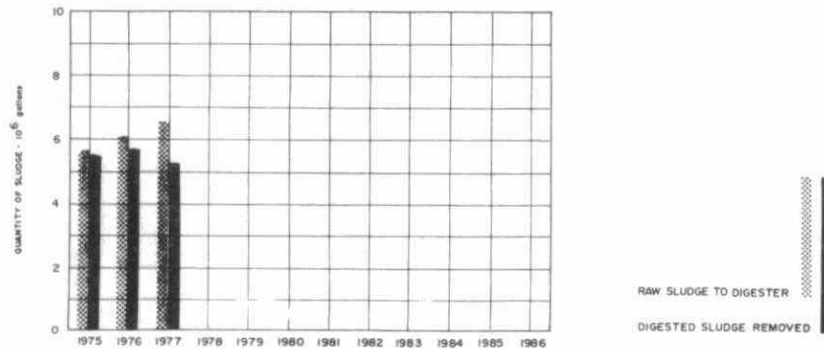
Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL						
	QUANTITY REMOVED	CL ₂ USED	AVG DOSE	BOD	SUSPENDED SOLIDS	MLSS CONC	F/M	AIR	RAW SLUDGE QUANTITY	SLUDGE TOTAL SOLIDS	DIGESTED QUANTITY	SLUDGE TOTAL SOLIDS	SUPER NATANT	AMOUNT HAULED	
	cubic feet	10 ³ pounds	mg/l	mg/l	mg/l	mg/l	day ⁻¹	1000 ft ³ TO BOD	10 ³ gallons	%	10 ³ gallons	%	%	cubic yards	
JAN	118	4.7	11.3	538	249	2700	.37		531		448	2.5	52	2760	
FEB	12	.1	9.4	394	193	4900	.16		368		309	2.6		1836	
MAR	140	2.8	5.0	391	347	4300	.22		600		481	2.8		2856	
APR	96	2.5	5.5	354	355	4000	.19		560		453	2.8		2688	
MAY	101	2.4	5.1	354	337	3300	.22		610		524	2.8		3111	
JUNE	186	1.2	10.2	396	403	3300	.29		658		618	2.7		3672	
JULY	181	2.2	13.0	396	632	4400	.20		488		396	2.3		2352	
AUG	195	2.8	6.7	548	995	4300	.30		542		455	2.2		2700	
SEPT	120	3.5	6.4	414	351	2500	.41		581		456	2.5		2712	
OCT	94	3.8	6.5	274	142	1700	.42		583		485	2.2		2880	
NOV	73	3.5	6.3	281	157	1600	.45		521		383	2.3		2268	
DEC	68	3.5	5.7	375	189	1900	.54		586		412	2.4		2448	
TOTAL	1384	33.0	-	-	-	-	-	-	6628	-	5420	-	-	32283	
AVG.	2.2 <small>(vs. 1.7) gal per</small>	2.8	5.3	406	375	3200	.31		552		452	2.5	52	2690	

DIGESTION



DESIGN DATA

PROJECT: Haldimand-Norfolk
(Delhi Twp)
Delhi WPCP

PROJECT NO: 2-1007-75

TREATMENT: Conventional
Activated Sludge

DESIGN FLOW: 0.7 MGD

BOD - Raw Sewage - 170 mg/l

SS Raw Sewage - 190 mg/l

PRIMARY TREATMENT

GRIT CHANNELS

Size: Two, each 25.25' x 1.7' x 2'
Volume (each) 536 IG
Retention (one): 1.1 min

COMMINUTORS

Type: Chicago Pumps
Size: 10-inch

PRIMARY SETTLING TANK

Type: One, rectangular
Size: 14' x 54' x 12' awd
Volume: 56,600 IG
Retention: 1.9 hr

RAW SLUDGE PUMPS

Type: One, Chicago Pumps
Size: 75 IGPM

SECONDARY TREATMENT

AERATION TANKS

Type: Two, rectangular
Size: each 50' x 21.8' x 16.5' awd
Volume: (total) 224,000 IG
Retention: 7.7 hr

AERATORS

Type: Four, mechanical

SECONDARY SETTLING TANKS

Type: One, circular
Size: 46' i.d. x 6' awd
Volume: 62,200 IG
Retention: 3.2 hr

RETURN SLUDGE PUMPS

Type: One, rectangular
Size: 43' x 15' x 7.75' awd
Volume: 31,200 IG
Retention: 3.1 hr

RETURN SLUDGE PUMPS

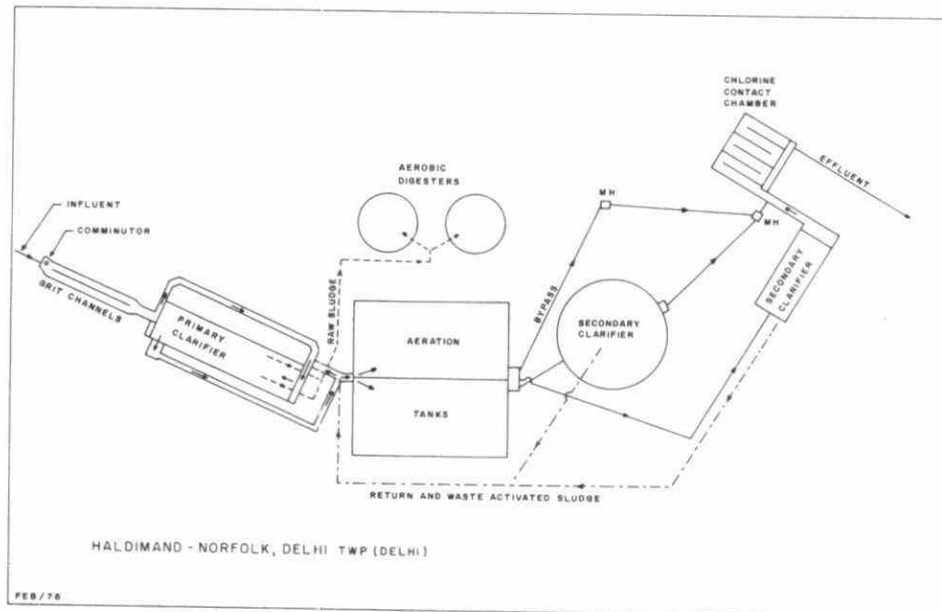
Type: Three, Hayward
Size: 150 IGPM max

AEROBIC DIGESTERS

Type: Two, circular
Size: (each) 13.6' id x 17' awd
Volume: (each) 2680 Ft³

CHLORINE CONTACT TANK

Type: One, rectangular 6-pass
Size: 26' x 19' x 6' awd
Volume: 18,500 IG
Retention: 38 min

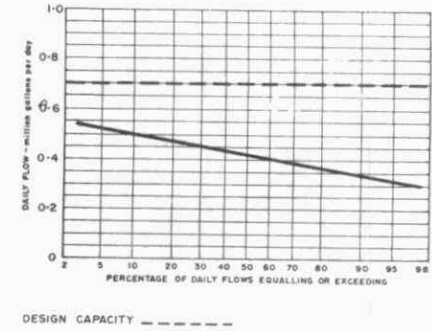
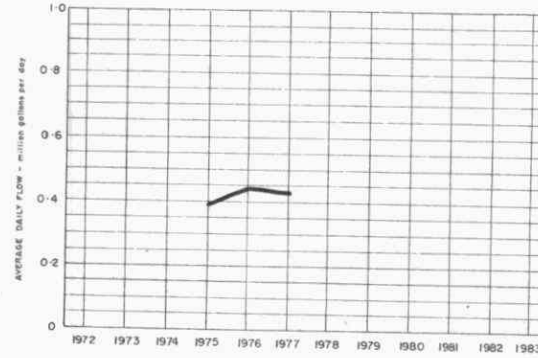


PLANT PERFORMANCE

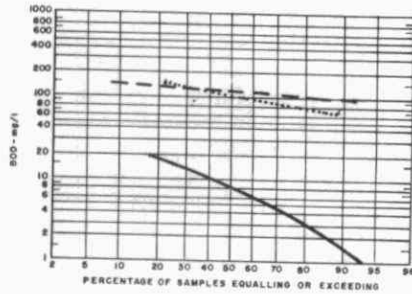
DELHI TWP. (DELHI) WPCP

PROCESS DATA FLOWS

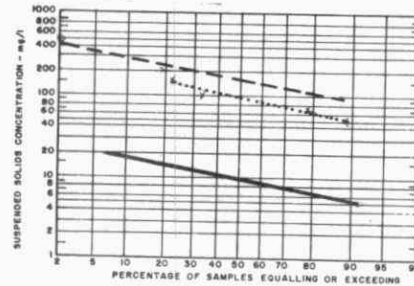
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	ml. gal.	mgd.	mg/l.	mg/l.	%	10 ³ pounds	mg/l.	mg/l.	%	10 ³ pounds	mg/l. P	mg/l. P
JAN	14.0	.47	.61					199	7	96	27		
FEB	13.4	.48	.64										
MAR	15.0	.48	.70	145	26	82	18	154	20	87	20	6.0	0.3
APR	12.0	.40	.48	110	7	94	12	171	10	94	19	7.4	0.3
MAY	12.3	.40	.54	115	6	95	13	184	6	97	22	7.3	0.2
JUNE	12.2	.41	.51	145	15	90	16	137	12	91	15	7.5	0.2
JULY	11.8	.38	.56	120	1	99	14	227	14	94	25	6.0	0.1
AUG	12.7	.41	.50	130	5	96	16	168	12	93	20	7.4	0.3
SEPT	13.1	.44	.58					170	10	94	21	5.0	0.4
OCT	13.7	.44	.57	115	8	93	15	172	10	94	22	5.3	0.4
NOV	13.1	.44	.52	120	16	87	14	193	14	93	23	8.2	0.6
DEC	12.1	.39	.56					158	8	95	18		0.2
TOTAL	155.4	-	-	-	-	-	-	-	-	-	-	-	-
AVG	13.0	.43	MAXIMUM .70	125	10	92	15	174	12	93	21	6.7	0.3
No. of Samples	-	-	-	11	11	-	-	62	67	-	-	17	20



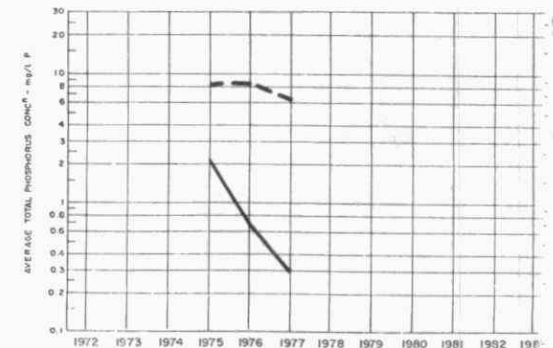
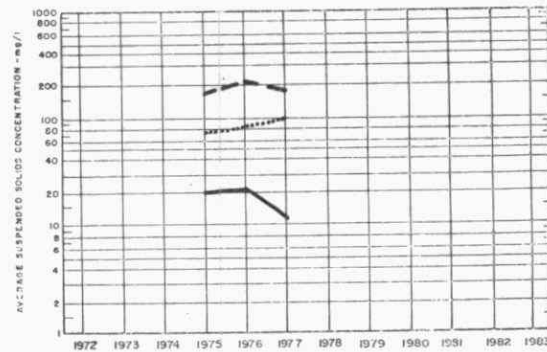
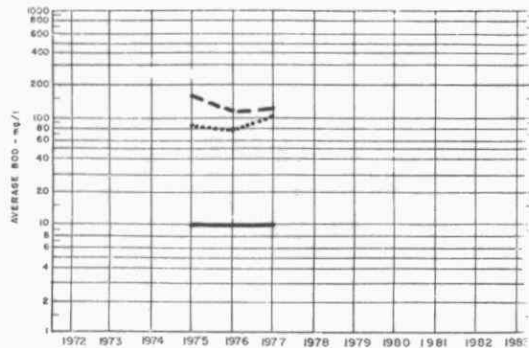
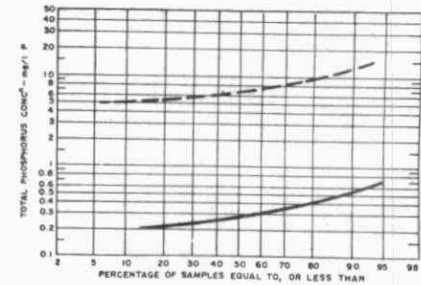
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		CL ₂ USED pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb 800	RAW SLUDGE		DIGESTED SLUDGE			SUPER- NATANT T. S. %	AMOUNT HAULED cubic yards	
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %			VOL SOLIDS %
JAN	40	496	3.5			3700			53			47				281
FEB	24	401	3.8						68			49				295
MAR	70	575	3.8			2900	.13		81			108				641
APR	46	419	4.6	75	96	3500	.05		82			69				410
MAY	41	582	4.7	90	80	3500	.06		90							
JUNE	76	561	4.6	160	116	3800	.10		97							
JULY	56	829	7.0	150	161	4300	.07		47			49				288
AUG	52	495	3.9	100	121	3700	.06		90			49				291
SEPT	44	498	3.8			4100			108							
OCT	38	525	3.8	100	83	4200	.06		68			106				636
NOV	74	496	3.8	85	65	3800	.05		72			82				492
DEC	8	485	4.9			1800			83							
TOTAL	559	6362	-	-	-	-	-	-	939	-	-	560	-	-	-	3334
AVG.	3.6 cu ft/ml gal	530	4.1	106	100	3600	.07		78			47				278

DESIGN DATA

PROJECT: Town of
Dunnville WPCP

PROJECT NO. 2-1010-75

TREATMENT: Modified Conventional
Activated Sludge

DESIGN FLOW: 1.7 MIGD

BOD - Raw Sewage 3100 lb/day

MAIN P.S.
Pumps: Three, each 2800 gpm

AERATED GRIT TANK
Size: 16.5'x13.5'x10' awd
Volume: 13,900 I.G.
Retention: 11 min

AERATION TANKS
Type: Two,
Size: each tank 35'x25'x14.75'
Volume(total): 322,000 I.G.
Retention: 4.5 hr
Blowers: Two, each 4850 cfm
Aerators: Dorr-Inka grids

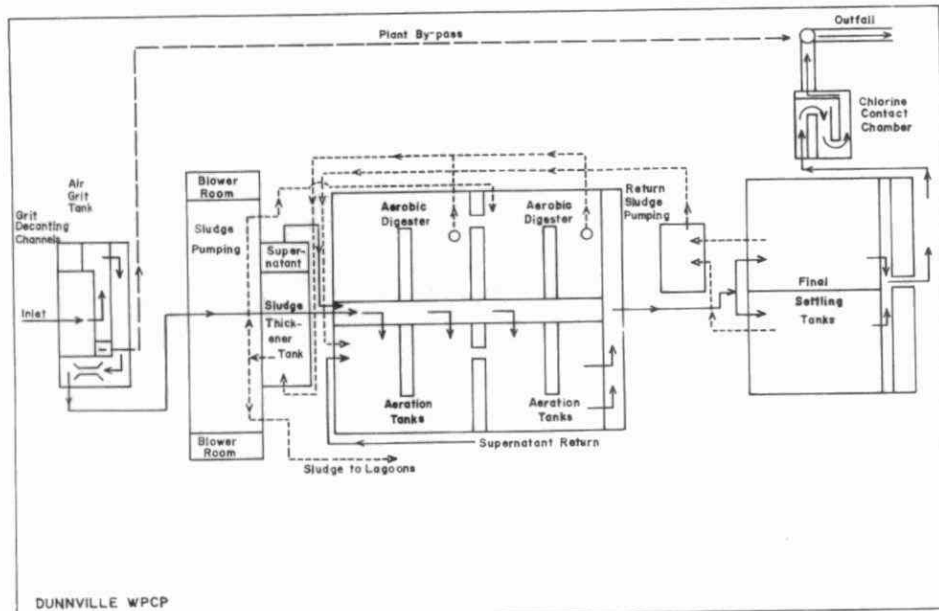
FINAL SETTLING
Size: Two, each 72'x18'x12'
Volume: 194,000 I.G.
Retention: 2.7 hr

CHLORINATION
Size: One, 36'x14.7'x12'
Volume: 39,600 I.G.
Retention: 34 min

SLUDGE HANDLING

AEROBIC DIGESTERS
Size: Four cells, each
35'x25'x14.75'
Volume: Total 322,000

SLUDGE LAGOONS
Size: Three, each
132'x80'x4.5'
Area: 142,600 ft²

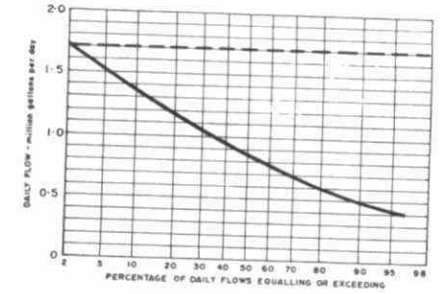
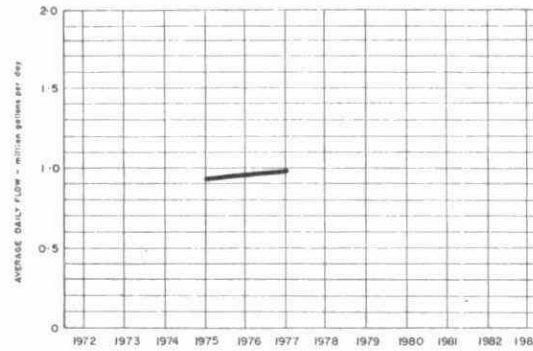


PLANT PERFORMANCE

DUNNVILLE WPCP

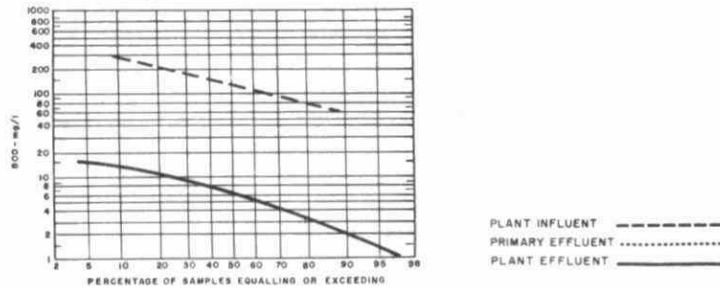
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT		
	million gallons	ml. gal.	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P	mg/l P		
JAN	25.7	.83	.75	150	7	95	36	120	21	83	25	4.3	0.9
FEB	21.8	.78	1.64	88	5	94	18	96	28	71	15	5.0	1.0
MAR	40.3	1.33	1.81	28	5	82	9	98	22	78	31	2.1	0.7
APR	34.2	.99	2.60	105	5	95	34	95	16	83	27	4.2	1.1
MAY	23.2	.79	1.69	118	2	98	27	84	12	86	17	3.8	0.8
JUNE	19.8	.66	.95	190	12	94	35	93	19	80	15	4.8	1.5
JULY	23.9	.77	1.27	145	5	97	33	98	15	85	20	4.8	0.7
AUG	26.3	.85	1.26	150	5	97	38	102	37	64	17	3.5	0.5
SEPT	33.7	1.88	1.88	105	12	89	31	139	22	84	39	3.7	0.9
OCT	32.4	1.05	1.50	260	3	99	83	220	13	94	67	4.1	0.4
NOV	32.7	1.09	1.70	288	9	97	91	267	21	92	80	5.2	0.4
DEC	43.1	1.46	2.74	90	12	87	34	118	30	75	40	2.5	0.5
TOTAL	357.1	-	-	-	-	-	503	-	-	-	350	-	-
AVG	29.8	.98	2.74	148	7	95	42	119	21	82	29	4.1	0.8
No. of Samples	-	-	-	23	22	-	-	75	75	-	-	23	104

PROCESS DATA FLOWS

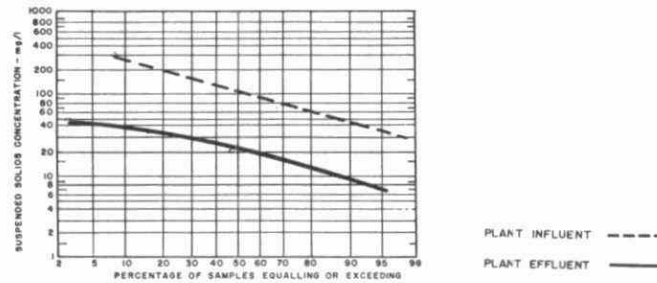


DESIGN CAPACITY -----

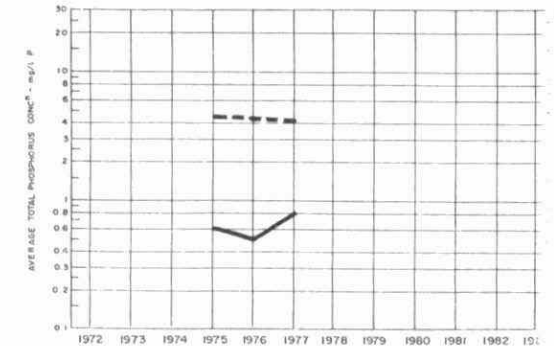
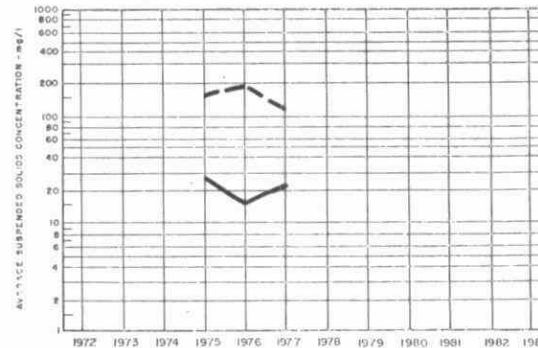
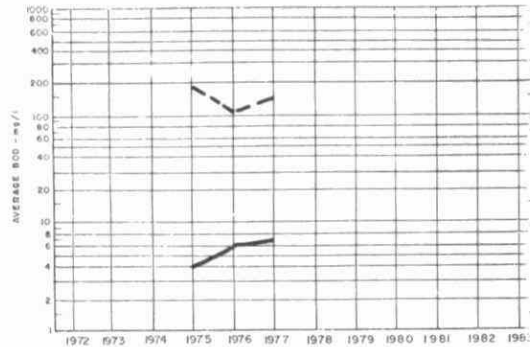
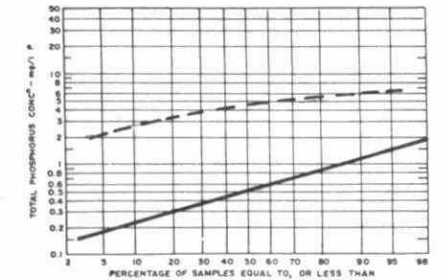
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED 10 ³ pounds	AVG. DOSAGE mg/l	MLSS CONC mg/L	F/M day ⁻¹	AIR USED 1000 ft ³ to 800	QUANTITY 10 ⁶ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/L	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	10	1.5	7.7	2400	.12	7.4	1.1	4000		87	22000		516
FEB	12	.7	3.1	2900	.09	9.6	.4	5000			29000		
MAR	24	1.6	4.0	2800	.04	24.6	.9	5900			20000		
APR	32	1.4	4.7	3000	.11	7.6	.6				12000		
MAY	21	1.1	4.5	2900	.10	8.2	.9	4000		107	13000		636
JUNE	20	1.5	7.7	3200	.12	6.4	.9	4000		133	7000		792
JULY	19	1.6	6.8	2300	.15	7.0	1.1	7000		133	14000		792
AUG	62	1.7	6.4	3400	.12	5.8	1.7			84	18000		500
SEPT	102	2.5	7.5	2000	.18	7.5	1.1	5000			16000		
OCT	34	1.8	5.6	3200	.26	2.9	1.2	8000			19000		
NOV	36	2.4	7.4	4300	.23	2.5	1.2	8000		137	18000		812
DEC	30	2.9	6.4	2400	.17	6.8	1.0	8000			19000		
TOTAL	402	20.7	-	-	-	-	12.1	-	-	681	-	-	4048
AVG.	1.1 cu ft/m ³ gal	1.7	5.9	2900	.14	8.0	1.0	5900			17300		377

DESIGN DATA

PROJECT Town of Fergus WPCP
 PROJECT No 2-0023-5f
 TREATMENT Activated Sludge
 DESIGN FLOW 1.1 mgd
 BOD Raw Sewage 200 mg/l
 Removal 90%
 SS Raw Sewage 200 mg/l
 Removal 90%

PRIMARY TREATMENT

GRIT REMOVAL:
 Type: Dorr-Oliver, Type T
 Detritor

COMMINUTION:
 Type: Barminutor
 Size: Model B (18")

PRIMARY SEDIMENTATION:
 Type: Dorr-Oliver
 Size: One 40' x 40' x 9' swd
 Volume: 90,000 l. Gal.
 Detention: 2.0 hours
 Loading: Surface 687 gal/ft²/day

SECONDARY TREATMENT

AERATION TANKS:
 Type: Mechanical Single Pass
 Size 1, 72' x 24' x 10.7' swd
 1, 72' x 24' x 12.2' swd
 Volume (total) 269,000 l. Gal.
 Retention: (total) 5.9 hours

Aerators - Ames Crosta

SECONDARY SEDIMENTATION:
 Type: #1 Dorr / #2 Elmcc
 Size: Two, 35' x 35' x 9' swd
 Volume (total) 137,000 l. Gal.
 Detention: 3 hours
 Loading - Surface 450 gal/ft²/day

CHLORINATION:
 Type: Wallace & Tiernan V-100

CHLORINE CONTACT CHAMBER:
 Size: 40' x 15' x 7' swd
 Volume: 26,000 l. Gal.
 Detention: 34 min.

OUTFALL - to Grand River

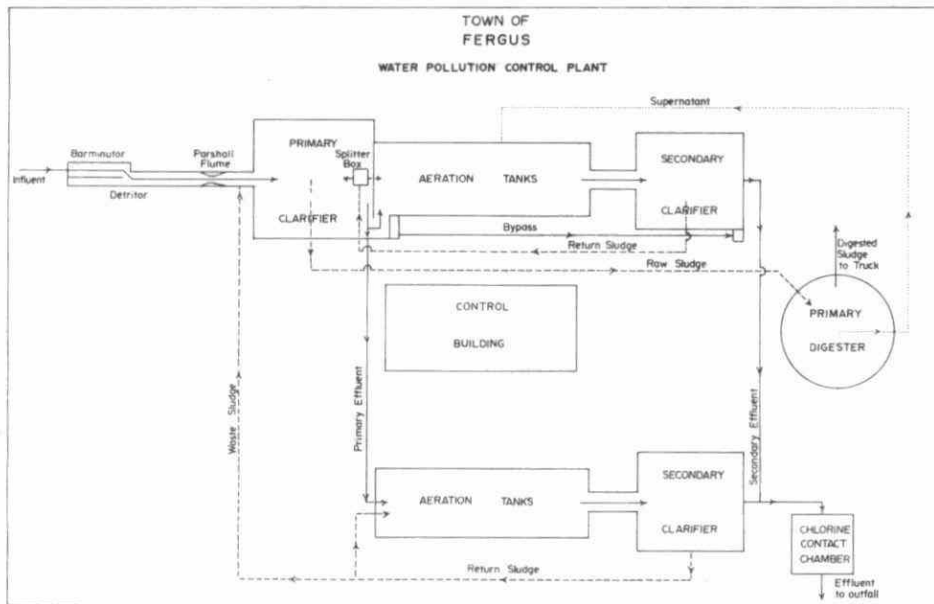
SLUDGE HANDLING

Digestion System

Type: Single stage, with floating cover
 and one Dorr draft tube mixer
 Size: 35' dia x 22' swd (22,700 cu ft or
 141,000 gal)
 Loading: 1.40 lb/ft³/mo

Drying Beds

- total area, 7,200 sq ft
 (discontinued use in 1964)

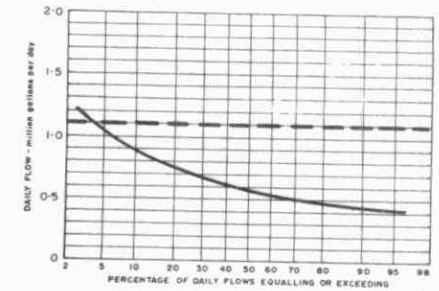
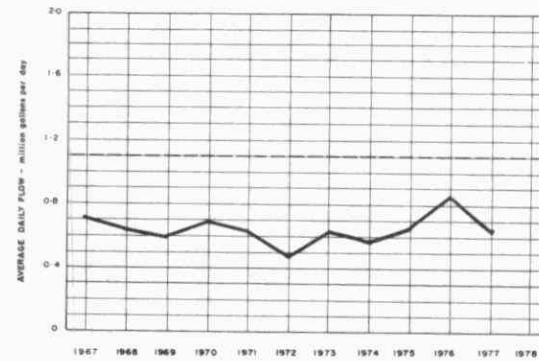


PLANT PERFORMANCE SEWAGE

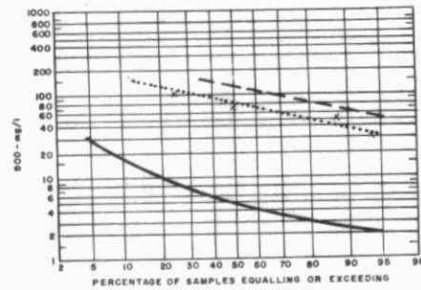
FERGUS WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	17.1	.55	.61	155	9	94	25	243	20	92	38	5.5	1.4
FEB	16.9	.59	.81	130	7	95	21	194	16	92	30	7.4	0.6
MAR	32.6	1.07	1.89	114	9	92	34	146	20	86	41	8.0	0.9
APR	25.1	.85	1.41	70	14	80	14	170	12	98	40	4.5	1.1
MAY	16.9	.54	.74	123	6	95	20	138	25	82	19	7.9	1.3
JUNE	15.0	.30	.64	120	5	96	17	206	23	89	27	11.9	1.5
JULY	14.9	.48	.95	75	3	96	11	245	38	84	31	5.6	0.7
AUG	15.4	.50	.62	140	3	98	21	235	21	91	33	6.3	0.8
SEPT	17.5	.57	1.32	180	3	98	31	192	17	91	31	7.7	1.3
OCT	23.6	.76	1.39	160	3	98	37	130	17	87	27	1.2	1.0
NOV	19.3	.66	.88	95	12	87	16	157	31	80	25	6.6	0.8
DEC	22.9	.74	1.17	100	16	84	19	155	29	81	29	5.5	0.6
TOTAL	237.7	-	-	-	-	-	261	-	-	-	380	-	-
AVG.	19.8	.65	1.89	118	8	93	22	181	21	88	32	6.7	1.1
No. of Samples	-	-	-	20	19	-	-	57	267	-	-	20	18

FLOWS

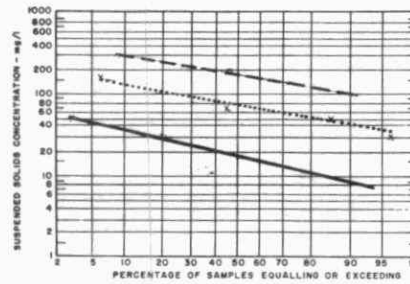


BOD₅

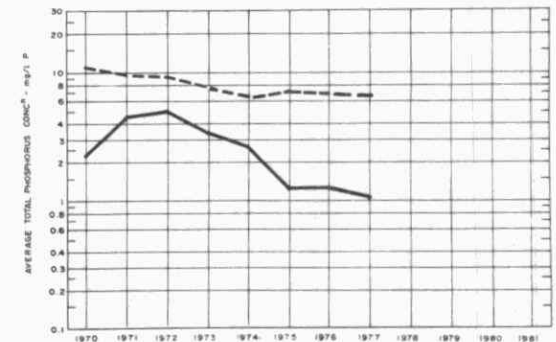
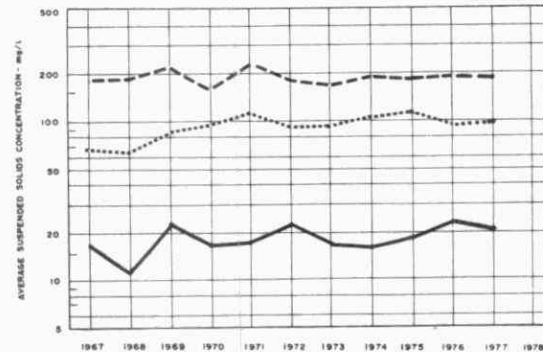
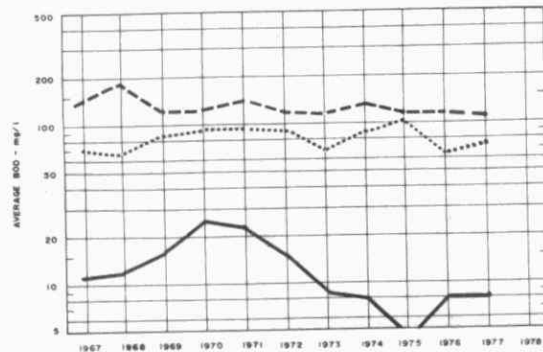
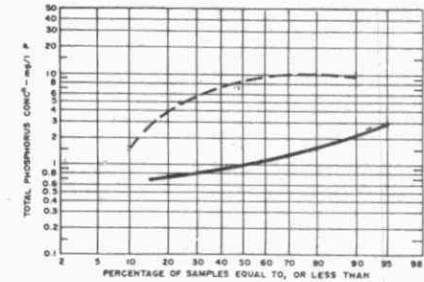


PLANT INFLUENT -----
 PRIMARY EFFLUENT
 PLANT EFFLUENT -----

Susp. Solids



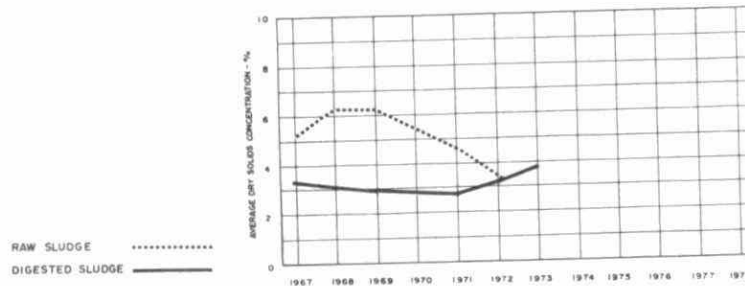
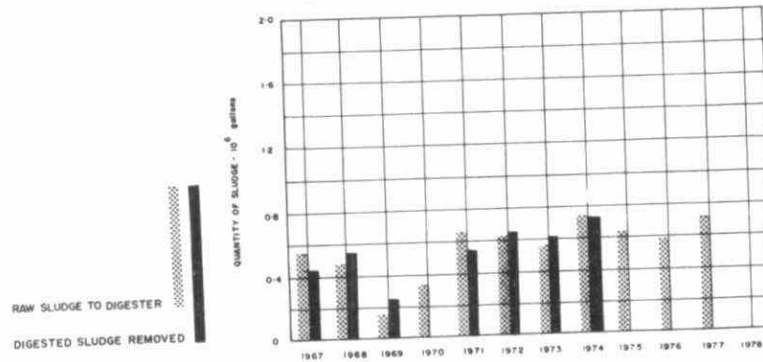
PLANT INFLUENT -----
 PLANT EFFLUENT -----



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL								
		CL ₂ USED pounds	AVG DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER- NATANT T. S. %	AMOUNT HAULED cubic yards	
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL SOLIDS %			
JAN	17	642	3.7	63	108	2900	.04		53								340
FEB	18	590	3.5		101	3100			47								441
MAR	50	705	2.2	100	83	2900	.01		53								461
APR	26	746	3.0	70	84	2500	.01		51								307
MAY	26	879	5.2	90	175	2700	.06		65								316
JUNE	19	538	3.6	54	105	2400	.02		55								508
JULY	36	702	4.7	90	151	2700	.06		75								317
AUG	31	761	5.0	63	110	2300	.05		55								1496
SEPT	21	664	3.8	155	105	3400	.09		84								531
OCT	26	599	2.5	60	72	2400	.07		59								
NOV	33	577	2.9	60	70	2800	.05		54								243
DEC	36	456	2.4	46	115	2200	.11		59								195
TOTAL	339	7858	-	-	-	-	-	-	710	-	-	-	-	-	-	-	5155
AVG.	1.4 <small>(in F/M) gal</small>	855	3.3	75	99	2700	.05		59								430

Digestion



DESIGN DATA

Project: Haldimand-Norfolk
Caledonia WPCP

Project No: 2-1009-75

Treatment: Conventional Activated
Sludge

Design Flow: 0.5 M.I.G.D.

PRIMARY TREATMENT

RAW SEWAGE PUMPING (at plant)

Type: Two, CHICAGO PUMP
Size: each 1038 I.G.P.D @ 28' TDH

Type: One, SMART TURNER 3HYVBS
Size: 500 IGPM @ 27' TDH

Type: One, CHICAGO PUMP UWLMB4
Size: 332 IGPM @ 27' TDH

Comminutors

Type: Two, CHICAGO PUMP

Bar Screen

Location: in bypass channel

Grit Channels

Size: Two, each 20' x 1.75' x 1.5' awd
Volume (each): 328 I.G.
Retention: 0.9 min (one)

Primary Clarifiers:

Size: One, 17' x 48' x 8.1' awd
Volume: 41,200 I.G.

Size: One, 20' x 20' x 10' awd
Volume: 25,000 I.G.
Retention: (both): 3.2 hr.

Raw Sludge Pumps

Type: Two, CHICAGO PUMPS
VTXH 44091

Size: each, 83 I.G.P.M. @ 20' TDH

Type: One, CHICAGO PUMPS
HBBLMC4

Size: 50 I.G.P.M. @ 42' TDH

SECONDARY TREATMENT

Aerator-Clarifiers

Type: Rectangular clarifier
Size: Four, each 30' x 30' x 10.5'
Volume (total): 236,000 I.G.
Retention (total): 11.3 hr

Chlorination

Contact Chamber:

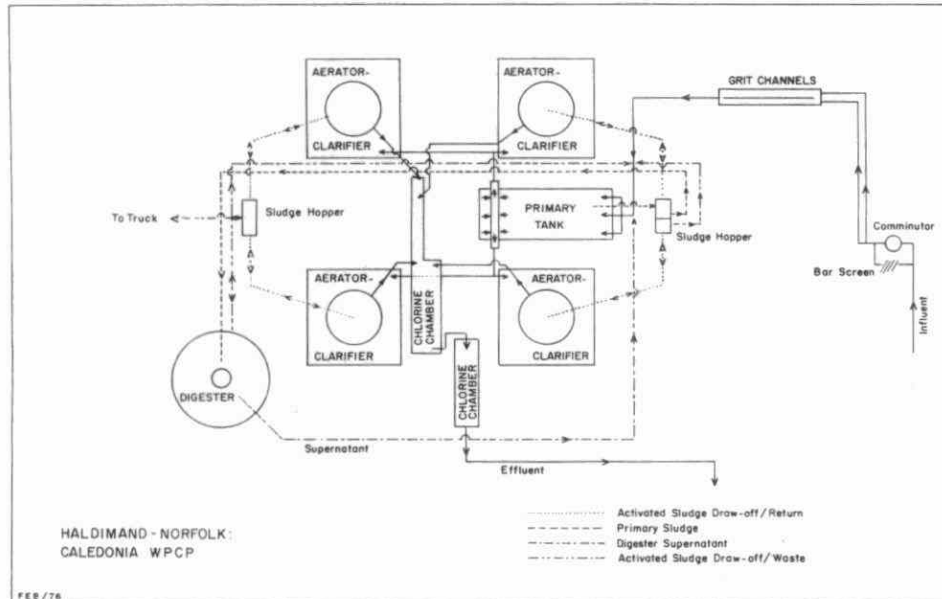
Size: One, 24' x 8.5' x 5.5'
Volume: 7,000 I.G.
Retention: 20 min.

Chlorinator:

Type: W and T LD 6069

Digester (unheated)

Size: One, 30' dia. x 17' awd
Volume: 80,000 I.G.

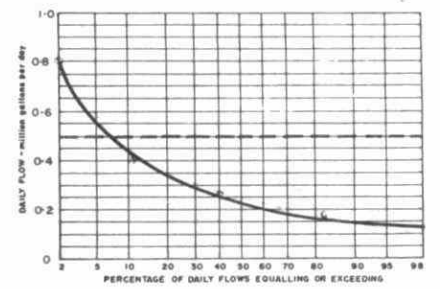
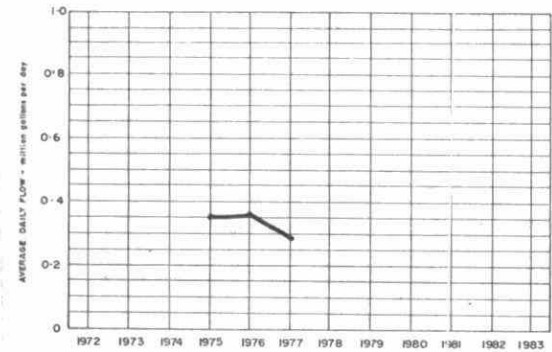


PLANT PERFORMANCE

HALDIMAND (CALEDONIA) WPCP

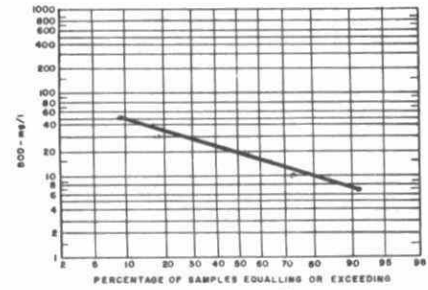
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	6.8	.22	.30										
FEB	10.0	.39	.58										
MAR	12.2	.39	.84	75	18	75	7.0	105	40	62	7.9	2.7	1.7
APR	11.7	.39	.45	115	23	80	10.8	317	35	89	3.3	2.7	
MAY	8.2	.26	.42					168	78	54	7.3	7.8	0.8
JUNE	6.5	.22	.36	125	14	89	7.2	186	58	69	8.3	7.6	0.9
JULY	6.9	.22	.31	180	9	95	11.8	200	68	66	9.1	8.4	0.5
AUG	6.6	.21	.28	100	35	65	4.3	134	29	81	7.1	6.8	1.8
SEPT	9.7	.32	.97	100	22	78	7.6	90	38	58	5.1	5.3	1.7
OCT	5.7	.18	.42	160	50	69	6.3	285	30	89	14.5	7.7	
NOV	5.5	.18	.35	110	8	93	5.6	114	40	65	4.1	7.0	0.7
DEC	14.8	.48	4.90	36				70				3.3	
TOTAL	104.6	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	8.7	.29	4.90	87	22	75	5.7	153	57	63	8.4	5.1	1.2
No. of Samples	-	-	-	17	10	-	-	24	26	-	-	15	7

FLOWS

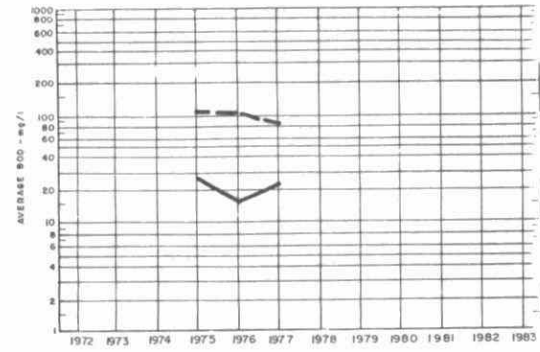


DESIGN CAPACITY -----

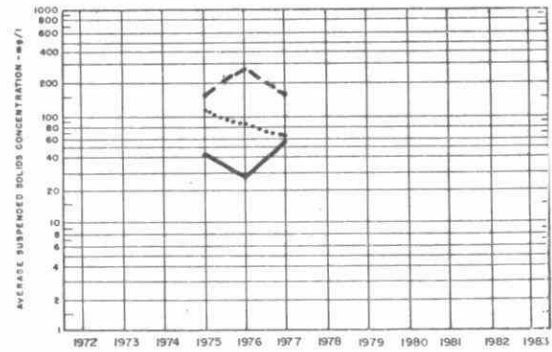
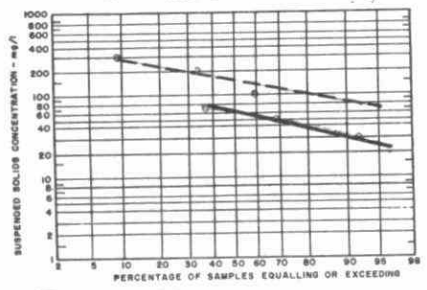
BOD₅



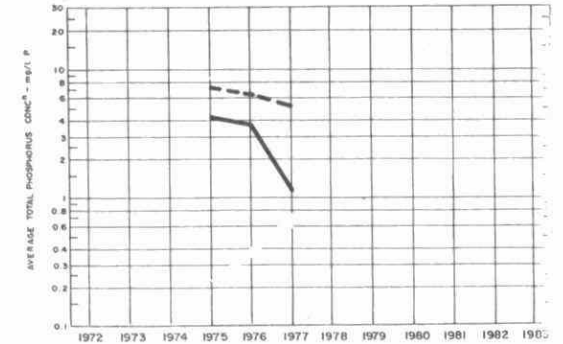
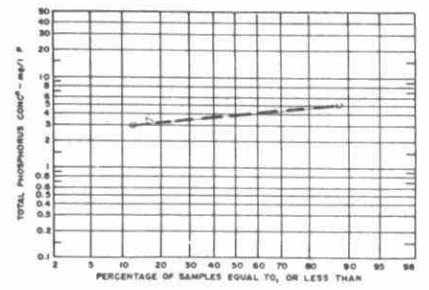
PLANT INFLUENT - - - - -
 PRIMARY EFFLUENT
 PLANT EFFLUENT _____



Susp. Solids



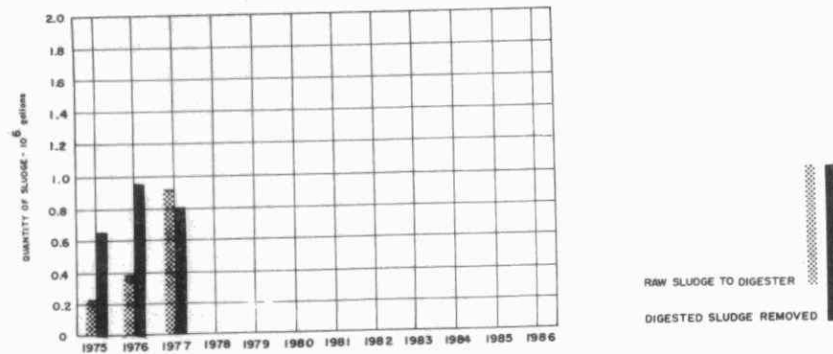
Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL								
		Cl ₂ USED pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M	AIR 1000 ft ³ to BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT T. S. %	AMOUNT HAULED cubic yards	
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %			
JAN	6	491	13.0						134								
FEB	30	355	3.6						44								
MAR	39	525	4.3		39	600	.18		74								
APR	30	505	4.3		72	600	.19		72								
MAY	6	509	6.2		84				48		247						1464
JUNE	3	665	10.2		73				103								408
JULY	6	668	9.7		59				65		57						336
AUG	26	581	8.8						73		136						804
SEPT	50	611	6.3		94				81		126						748
OCT	24	725	12.7		10				78		115						682
NOV	32	750	13.7						77		55						324
DEC	40	671	4.5						70		65						394
TOTAL	292	7056	-	-	-	-	-	-	919	-	-	801	-	-	-	-	5150
AVG.	2.8 cu. ft./mil. gal.	588	6.7		68	600	.19		77		114						644

DIGESTION



DESIGN DATA

PROJECT: Haldimand-Norfolk
(Hagersville) WPCP

PROJECT NO. 1-1001-72

DESIGN FLOW: 0.25 MIGD

PUMPING STATIONS:

Parkview & Mud St. P.S.

Type: Smith & Loveless

Pumps: Two, 8 & L 4B!
delivering 270 gpm @ 15'TDH

Mary Street P.S.

Type: Smith & Loveless

Pumps: Two, Allis Chalmers 300F7M1
delivering 252 USgpm @ 20'TDH

Tuscarora St.

Type: built on site

Pumps: One, Smart Turner
495382-2-1/2HXVS
(with identical unit as stand-by)

BAR SCREEN

Bars: 14" x 4"

COMMINUTOR

Type: One Procor C'85

Size: 10R, 45 RPM

RAW SEWAGE PUMPS

Type: Two, Smart Turner 3HYVBT

Size: 250 Igpm @ 20' TDH

PRIMARY CLARIFIER

Type: circular, 25' dia. x 10'swd

Size: 30600 I.G.

Retention: 2.9 hr.

Loading-surface: 510 I.gal/ft²/day

AERATION TANK

Type: circular, 36' dia. x 8'swd

Size: 50,800 I.G.

Retention: 4.8 hr.

Mechanism: 'Vortair' Mechanical

SECONDARY CLARIFIER

Type: circular 24' dia x 9'swd

Size: 25,400 I.G.

Retention: 2.4 hr

Loading-surface: 551 I.G./ft²/day

CHLORINE CONTACT CHAMBER

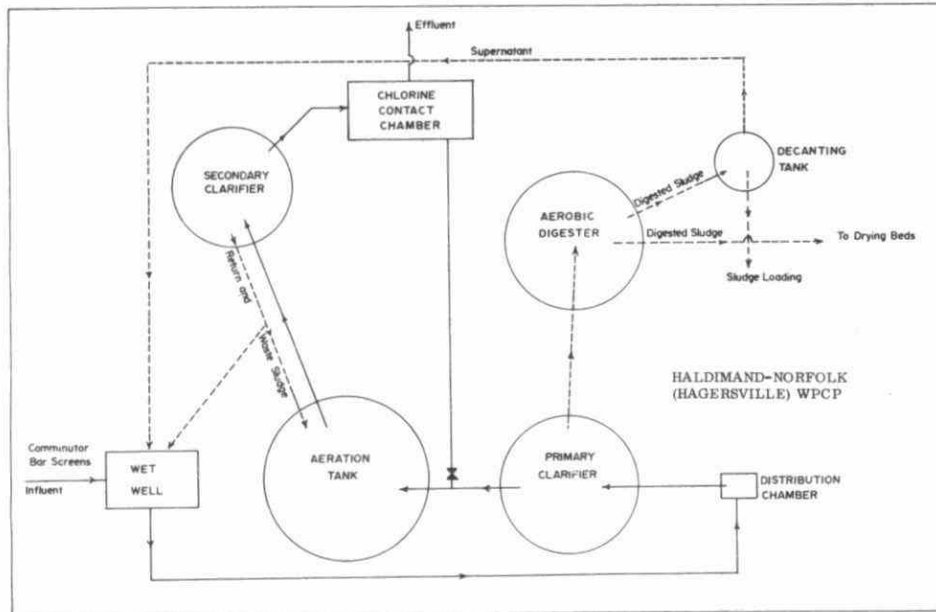
Size: 6' x 15.5' x 7'

4100 I.G.

Retention: 25 min

SLUDGE DRYING BEDS₂

Area: 7600 ft²

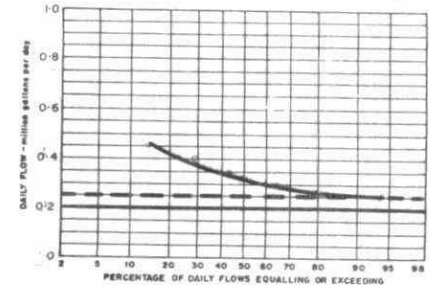
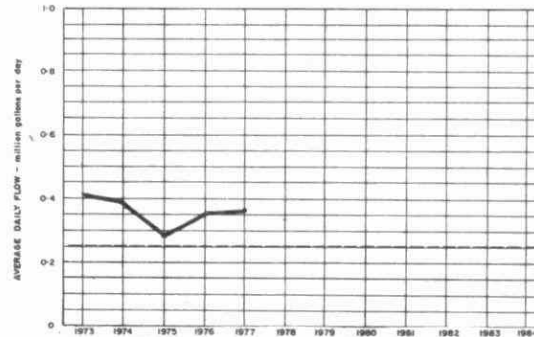


PLANT PERFORMANCE

HALDIMAND (HAGERSVILLE) WPCP

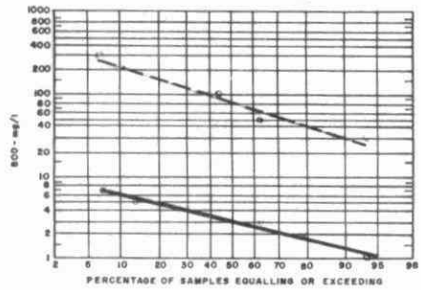
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	10.1	.32	.36	100	4	96	9.7	151	23	85	12.9	6.2	0.2
FEB	10.9	.38	.57	70	7	90	6.8	99	16	84	9.0	3.6	
MAR	14.4	.46	.51	120	1	99	17.2	134	25	81	15.7	3.1	0.7
APR	13.4	.44	.54	120	4	97	15.6	107	15	86	12.4	9.0	
MAY	9.9	.32	.41	250	4	98	24.2	566	16	97	53.2	13.9	0.3
JUNE	10.1	.34	.50										
JULY	8.8	.28	.36										
AUG	9.2	.30	.39	62	4	94	5.3	72	11	85	5.6	3.5	0.2
SEPT	11.2	.37	.48										
OCT	11.4	.37	.50	50	4	92	5.2	70	10	86	6.8	3.1	0.4
NOV	10.4	.35	.48	38	2	95	3.8	33	5	85	2.9	2.1	0.2
DEC	13.8	.44	.51	34	3	91	4.3	65	15	77	6.9	2.4	0.2
TOTAL	133.6	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	11.1	.37	MAXIMUM .57	102	4	96	10.9	163	15	91	16.5	5.4	0.3
No. of Samples	-	-	-	13	13	-	-	13	15	-	-	13	11

PROCESS DATA FLOWS



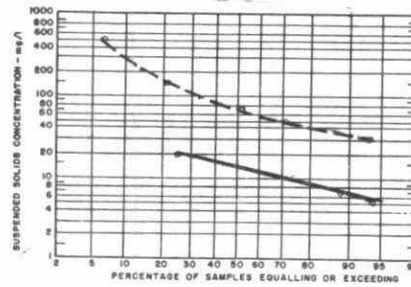
DESIGN CAPACITY - - - - -

BOD₅

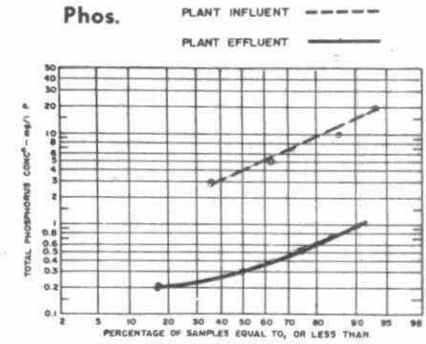


PLANT INFLUENT - - - - -
PRIMARY EFFLUENT
PLANT EFFLUENT - - - - -

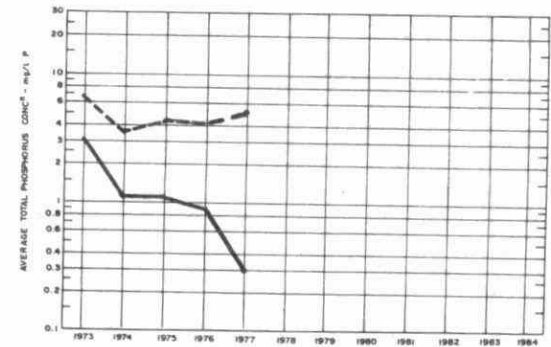
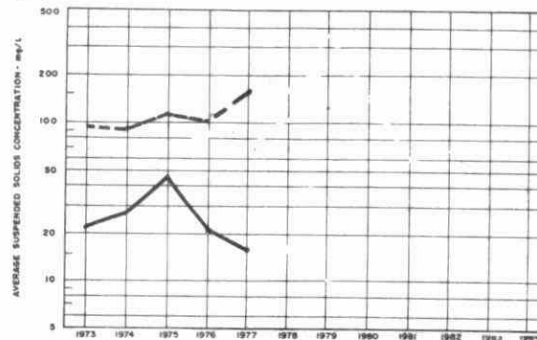
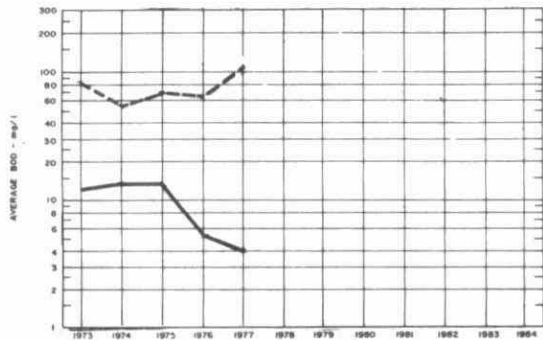
Susp. Solids



Phos.



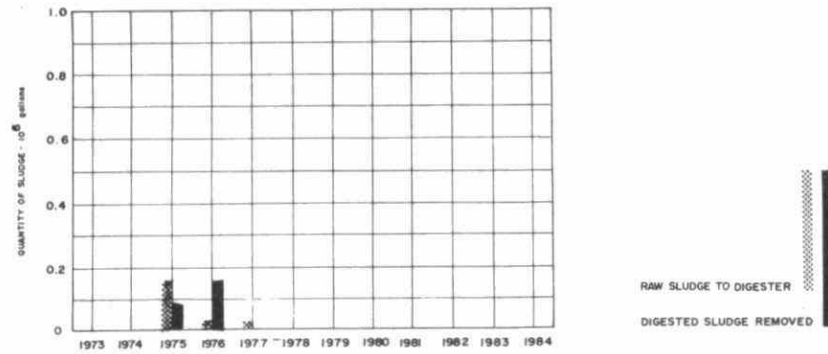
PLANT INFLUENT - - - - -
PLANT EFFLUENT - - - - -

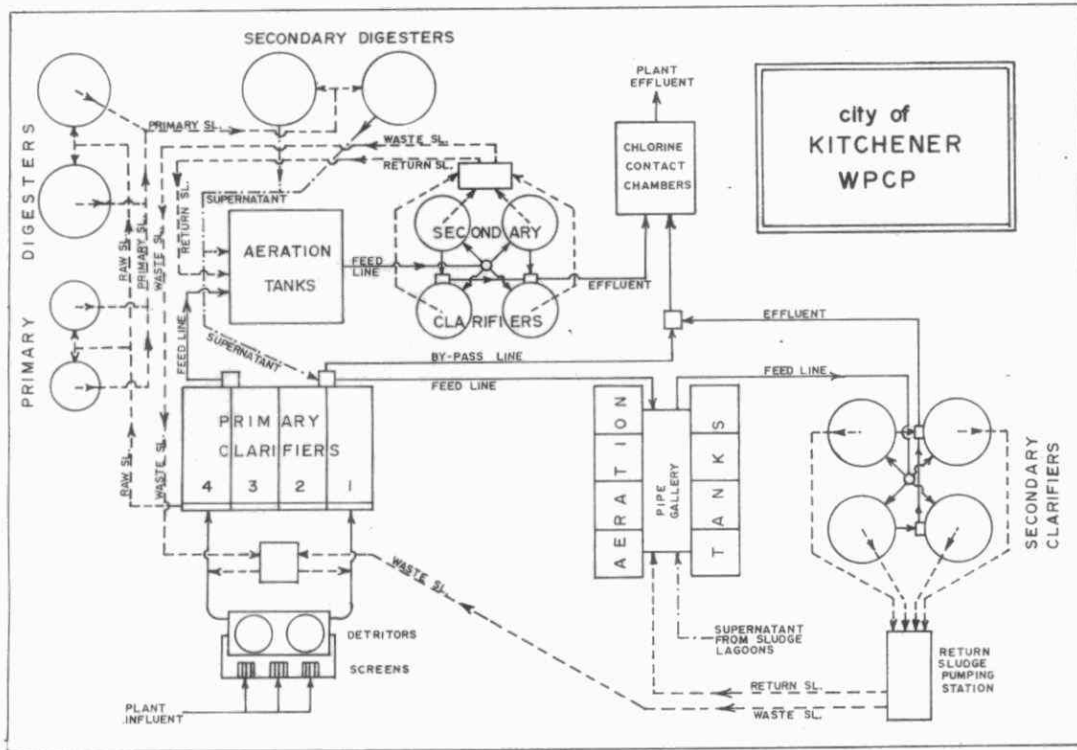


TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
	QUANTITY REMOVED cubic feet	CL ₂ USED	AVG. DOSE	BOD	SUSPENDED SOLIDS	MLSS CONC	F/M	AIR	QUANTITY	TOTAL	VOL.	QUANTITY	TOTAL	VOL.	SUPER-	AMOUNT
		pounds	mg/l	mg/l	mg/l	mg/l	mg/l	day ⁻¹	1000 ft ³ lb BOD	3	10	%	10	10	%	NATANT T.S.
JAN		320	3.1						5.0							27
FEB		115	1.0						17.0							99
MAR		467	3.2						20.0							117
APR		432	3.2						2.0							9
MAY		346	3.5						15.0							90
JUNE		316	3.1						17.0							102
JULY		336	3.8						11.0							63
AUG		331	3.6						21.0							126
SEPT		407	3.6						12.0							72
OCT		386	3.4						17.0							99
NOV		322	3.1						14.0							81
DEC		355	2.6						9.0							54
TOTAL		4133	-	-	-	-	-	-	160.0	-	-	-	-	-	-	939
AVG.		344	3.1						13.3							78

DIGESTION





DESIGN DATA

PROJECT City of Kitchener WPCP
 PROJECT NO. 1-0314-72
 previously 2-0019-58
 TREATMENT Conventional Activated Sludge
 DESIGN FLOW 27 MIGD
 RAW SEWAGE BOD 275 mg/l
 SS 300 mg/l

Primary Digesters

- Two 65' dia. x 22' SWD (144,000 ft³ or 0.9 mg.) loading 1.08 lb/Cu. Ft./day
- Two 110' dia. x 25' SWD (475,000 ft³ or 3.0 mg) loading 0.18 lb/Cu. Ft./day.

Secondary Digester

- Two 100' dia. x 29' SWD (400,000 ft³ or 2.5 mill. gall.) loading 0.29 lb/ft³/mo. type: Dorr, floating cover.

Vacuum Filter

Type: Konline - Sanderson
 Size: 500 sq. ft. (one only).

Sludge Lagoon

Area: 16 acres.

Sand Filter

Ten - 16' x 100' = 16,000 sq. ft. with automatic backwash.

Chlorination

- One contact chamber 141,000 gallons with 15 min. retention.
- One contact chamber 451,000 gallons with 15 min. retention.

PRIMARY TREATMENT

Screening

- Three (incl. one standby) mechanically cleaned bar screens by Dorr-Oliver-Long. Set in concrete channels 5' wide x 3.5' deep @ 75° incline. Bars are 3/8" thick 2" wide with 1" clear between bars.

Grit Removal

Two detritor tanks 35' square x 30" deep. 26(U.S.) MGD.

Primary Clarifiers

- Four, 190' x 65' x 12' SWD 146,900 ft³/tank.

SECONDARY TREATMENT

Aeration Tanks

- 8 Concrete cells 65' square with 15'-6" SWD with mixed liquor volume 62,000 ft³ ea.
- 4 tanks 210'x60'x13'-3" deep (total 4.2 million gallons).
- Ames Crosta Aerators.

Secondary Clarifiers

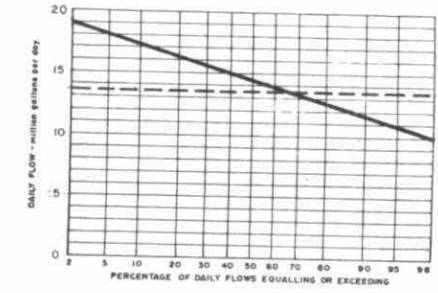
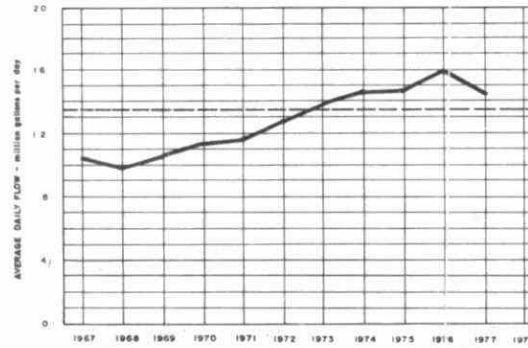
- 4 tanks 110' dia. with 10' SWD with Dorr-Oliver Sludge collector type RSR.
- 4 tanks 80' dia. with 10' SWD. 2.4 hrs. retention. Surface loading 672 gal/ft²/day. Weir Loading 13,400 gal/ft²/day.

PLANT PERFORMANCE

KITCHENER WPCP

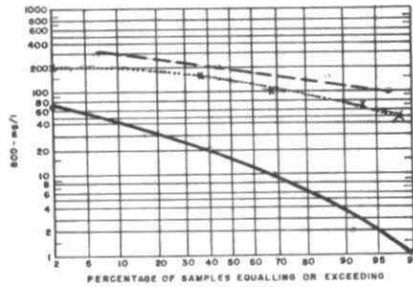
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mi. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN	416	13.4	14.7	275	20	93	1060	245	12	95	969	10.0	0.6
FEB	388	14.0	16.1	322	34	89	1116	264	16	94	961		0.6
MAR	494	16.0	18.3	220	20	91	988	211	18	91	954		0.4
APR	445	14.8	17.2	191	32	83	707	225	31	86	863	6.1	0.4
MAY	342	11.0	13.1	181	38	79	489	192	31	84	551	6.4	0.3
JUNE	426	14.2	16.6	260	20	92	1023	207	7	97	852	8.0	0.9
JULY	434	14.0	17.2	256	23	91	1011	174	9	95	716	8.6	1.0
AUG	468	15.1	19.4	250	10	96	1123	210	9	96	941		1.7
SEPT	465	15.5	21.1	205	8	96	916	187	7	96	837	7.7	1.8
OCT	477	15.4	21.2	194	6	97	898	176	7	96	807	5.6	2.1
NOV	434	14.5	17.3	183	4	98	776	175	6	97	733		1.0
DEC	470	15.2	20.1	213	13	99	939	155	10	94	681	8.0	2.0
TOTAL	5259	-	-	-	-	-	11149	-	-	-	9619	-	-
AVG.	438	14.4	MAXIMUM 21.2	230	18	92	929	195	14	93	793	7.7	1.1
No. of Samples	-	-	-	99	99	-	-	222	222	-	-	9	255

PROCESS DATA FLOWS



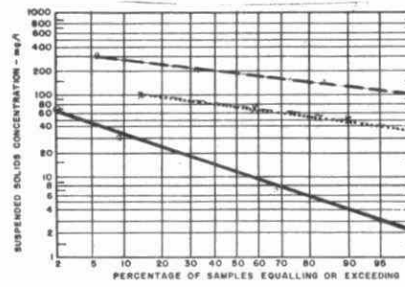
DESIGN CAPACITY -----

BOD₅



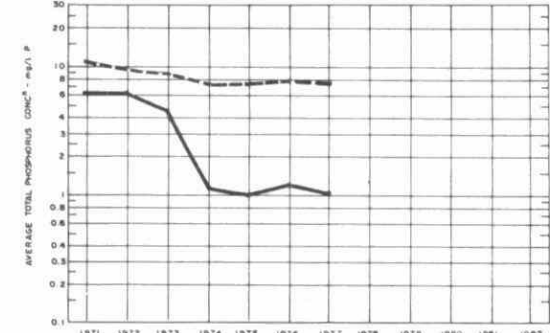
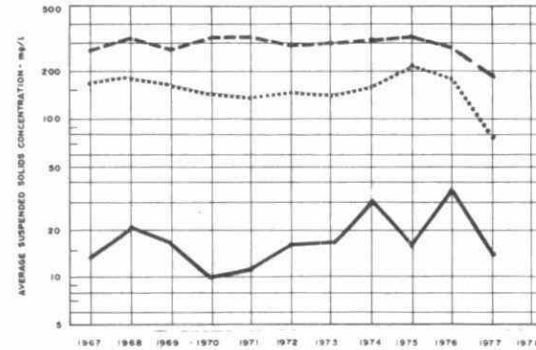
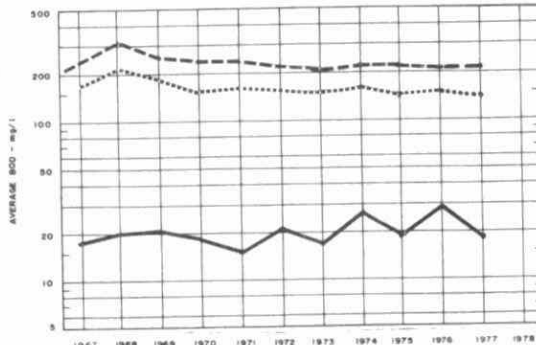
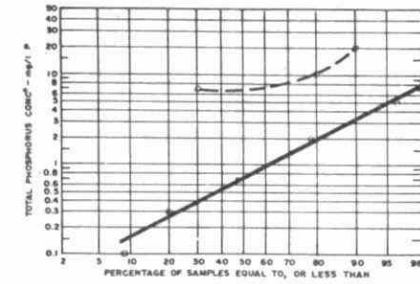
PLANT INFLUENT -----
PRIMARY EFFLUENT
PLANT EFFLUENT -----

Susp. Solids



PLANT INFLUENT -----
PLANT EFFLUENT -----

Phos.



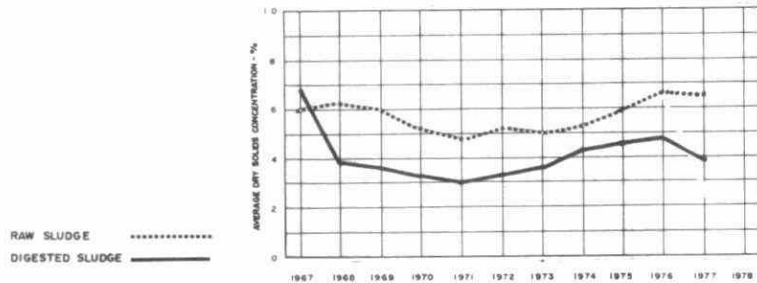
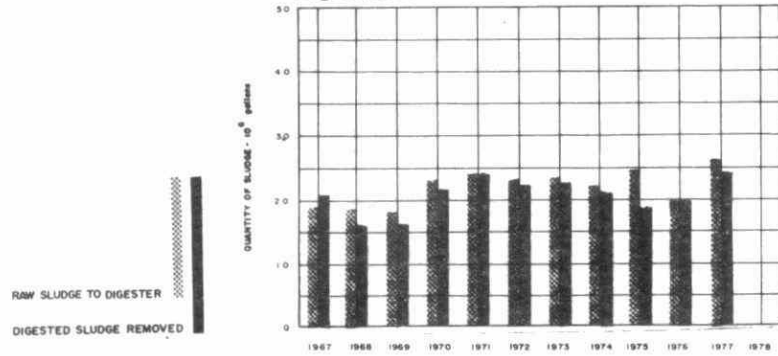
TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		CL ₂ USED pounds	AVG DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ /lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER- NATANT T.S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ⁶ gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 ⁶ gallons	TOTAL SOLIDS %	VOL SOLIDS %		
JAN	1296	17.0	4.0	186	129	3400	.17		2.0	5.8		2.0	3.0			11992
FEB	774	16.0	4.1	176	117	3400	.18		1.8	6.6	74	2.0	3.6	57		11680
MAR	1158	31.4	6.4	168	102	3200	.16		2.2	5.7		1.7	4.0			10343
APR	1206	22.3	5.0	128	81	2700	.14		2.3	5.9	62	2.5	4.0	52		13337
MAY	1116	31.9	9.3	66	60	2200	.05		2.0	5.6	71	2.3	3.1	55		13649
JUNE	774	23.2	5.4	122	63	2500	.14		2.3	6.5	71	2.6	3.8	58		14795
JULY	522	19.7	4.5	141	65	2900	.15		1.8	7.1	65	2.4	4.2	52		14147
AUG	936	29.6	6.3	134	78	2600	.19		1.9	7.0	58	2.0	4.7	53		11694
SEPT	864	21.7	4.7						2.3		1.5					8863
OCT	540	28.8	6.0						1.9	6.7	66	1.9	5.1	44		11340
NOV	1260	17.5	4.0						2.9	9.5	69	1.7	4.1	53	1.2	9993
DEC	1140	19.5	4.1						2.6	5.6	72	1.4	3.6	55	.7	8494
TOTAL	11586	278.6	-	-	-	-	-	-	26.0	-	-	24.0	-	-	-	140327
AVG.	2.2 cc/1000 ft ³ gal	23.2	5.3	145	79	2900	.08		2.2	6.5	68	2.0	3.9	53	1.0	11694

TREATMENT DATA

MONTH	NO. 1 PLANT (old plant) - A							NO. 2 PLANT (new plant) B								
	AVG DAILY FLOW mil gal	PRIM EFF		SEC EFF		AERATION			AVG DAILY FLOW mil gal	PRIM EFF		SEC EFF		AERATION		
		BOD	S S	BOD	S S	MLSS CONC	F/M	AIR		BOD	S S	BOD	S S	MLSS CONC	F/M	AIR
JAN																
FEB																
MAR																
APR																
MAY																
JUNE																
JULY																
AUG																
SEPT	10.2	111	105			3500	.08		8.4	88	49			3300	.06	
OCT	7.6	115	95			4700	.05		8.9	116	67			5100	.05	
NOV	7.9	111	65			5100	.04		6.5	128	64			4300	.05	
DEC	7.9	155	74			4700	.07		7.2	163	77			4600	.06	
TOTAL																
AVG.	8.4	123	84			4500	.06		7.8	131	66			4300	.06	

Digestion



Secondary Sedimentation

Type: Dorr
 Size: One 46' (hex) x 9 1/2' swd (98,600 gal)
 Retention: 3.16 @ design flow with 25% return sludge
 Loading: Surface, 360 gal/ft²/day
 Weir, 4150 gal/ft/day

CHLORINATION

Type: Fisher & Porter
 Size: One, 100 lb/day.

Chlorine Contact Chamber

Size: One 18' x 14 1/2' x 6' (6,800 gal)
 Retention: 16.4 min

PLANT #2 (1.4 mgd)

PRIMARY TREATMENT

Primary Sedimentation

Type: Dorr
 Size: Two 45' dia x 10' swd (198,000 gal)
 Retention: 3.4 hr
 Loading: Surface, 440 gal/ft²/day
 Weir, 5570 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air; single-pass
 Size: Two 98' x 25' x 12 1/2' (382,200 gal)
 Retention: 6.3 hr

Diffusers

Type: Inka

Air Supply

Type: James Houden Co.
 Size: Two 5508 scfm

Secondary Sedimentation

Type: Dorr
 Size: Two 45' dia x 10' swd (198,000 gal)
 Retention: 3.4 hr
 Loading: Surface, 440 gal/ft²/day
 Weir, 5570 gal/ft/day

CHLORINATION

Chlorine Contact Chamber

Size: 15' x 20.6' x 8.2' (15,700 gal)
 Retention: 16 min

OUTFALL (Common)

- to Lynn River

SLUDGE HANDLING (Common)

Digestion System - two-stage

Primary --
 Type: PFT; gas mixed (Pearth floating cover)
 Size: One 50' dia x 20' swd (43,250 cu ft or 270,000 gal)
 Loading: 2.86 lb/cu ft/mo

Secondary --
 Type: PFT
 Size: One 50' dia x 20' swd (43,250 cu ft or 270,000 gal)
 Total Loading: 1.43 lb/cu ft/mo

Centrifuge

Type: One, KRUGER 500 KDF
 Size: 40 HP Motor

DESIGN DATA

PROJECT Town of Simcoe WPCP

PROJECT NO. 2-0123-62

TREATMENT Activated Sludge

DESIGN FLOW 2.0 mgd

DESIGN POPULATION 15,400

BOD - Raw Sewage 220 mg/l
 - Removal 90%

SS - Raw Sewage 230 mg/l
 - Removal 90%

COMMON

RAW SEWAGE PUMPS

a) Type: Fairbanks-Morse
 Size: One 1200 gpm @ 35' tdh

b) Type: Smart-Turner
 Size: One 500 gpm @ 35' tdh

c) Type: Worthington
 Size: Two 2000 gpm @ 50' tdh

PRETREATMENT (Common)

Grit Removal

Type: Dorr Detritor
 Size: One 14' x 14' x 1 1/2' (1,850 gal)
 Retention: 1.33 min

Comminution

Type: Barminator
 Size: Model "C" (24")

PLANT #1 (0.6 mgd)

PRIMARY TREATMENT

Primary Sedimentation

Type: Hardinge
 Size: One 50' x 20' x 8' (50,000 gal)
 Retention: 4.31 hr
 Loading: Surface, 600 gal/ft²/day
 Weir, 30,000 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

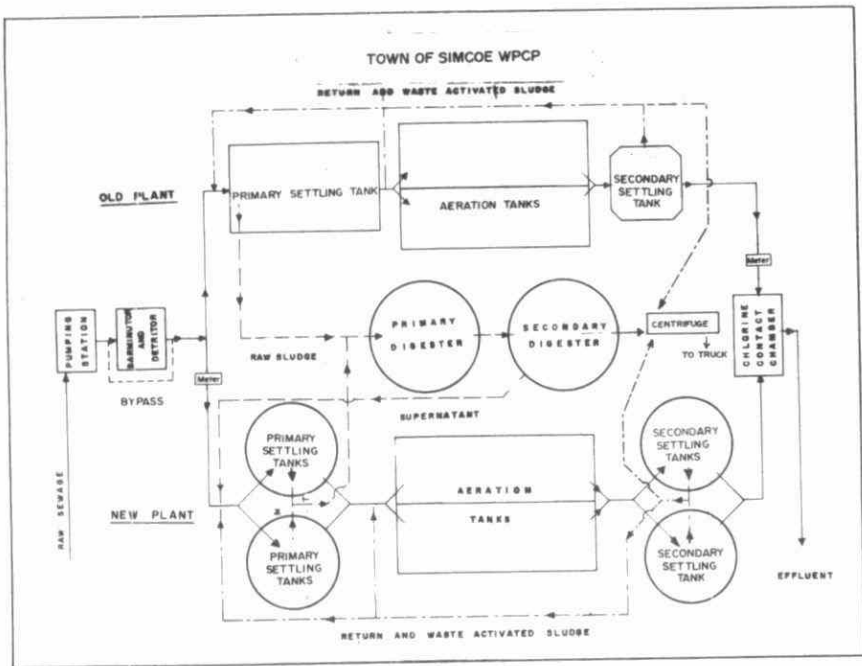
Type: Diffused air, Four pass
 Size: 8 - 12' x 50' x 8' (240,000 gal)
 Retention: 9.6 hr

Diffusers

Type: Holes in pipe & spargers

Air Supply

Type: Roots-Connorsville
 Size: Two 1200 scfm

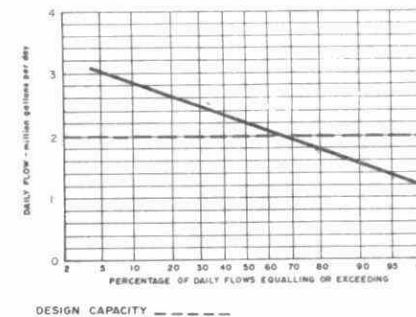
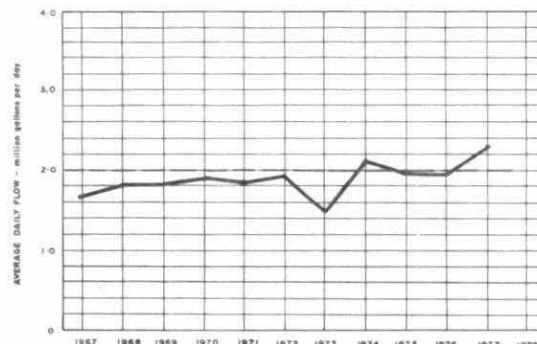


PLANT PERFORMANCE

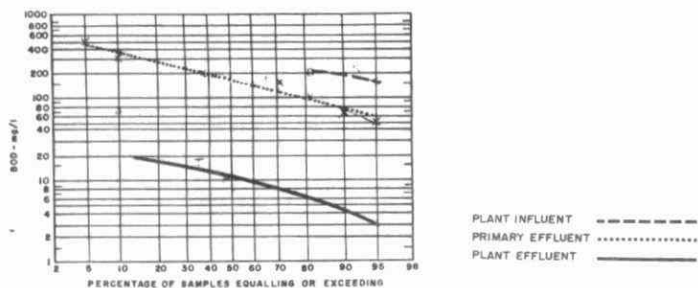
SIMCOE WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	REDUCTION	INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%		10 ³ pounds	mg/l	mg/l		%	10 ³ pounds
JAN	48.9	1.5	1.9	185	8	96	87	260	24	91	115	6.4	0.4
FEB	43.3	1.6	1.8	280	8	97	118	227	20	91	90	6.6	0.8
MAR	88.0	2.8	3.8	210	10	95	176	231	12	95	193	6.2	0.3
APR	79.9	2.7	4.0	205	10	95	156	289	12	96	221	6.9	0.5
MAY	75.0	2.4	2.9	248	13	95	176	297	9	97	216	8.1	0.5
JUNE	66.7	2.2	2.7	258	6	98	168	179	10	94	113	7.4	0.4
JULY	58.6	1.9	2.6	233	7	97	132	187	5	97	107	6.4	0.3
AUG	65.7	2.1	2.8	243	8	92	147	320	4	99	208	7.8	0.7
SEPT	73.8	2.5	4.8	170	90	47	59	199	22	89	131	4.5	4.9
OCT	80.2	2.6	3.4	200	10	95	152	204	23	89	145	7.5	1.2
NOV	73.9	2.3	3.0	227	6	97	163	246	12	95	173	6.6	0.6
DEC	78.8	2.5	3.6					219	14	94	162	6.3	0.7
TOTAL	832.8	-	-	-	-	-	1716	-	-	-	1899	-	-
AVG	69.4	2.3	MAXIMUM 4.8	219	13	94	143	243	15	94	158	6.8	0.8
No. of Samples	-	-	-	20	20	-	-	119	100	-	-	51	40

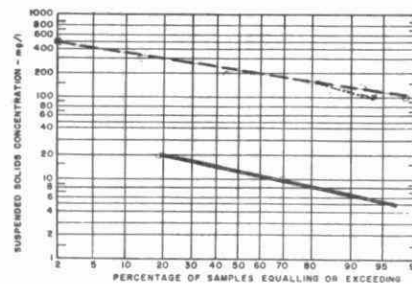
PROCESS DATA FLOWS



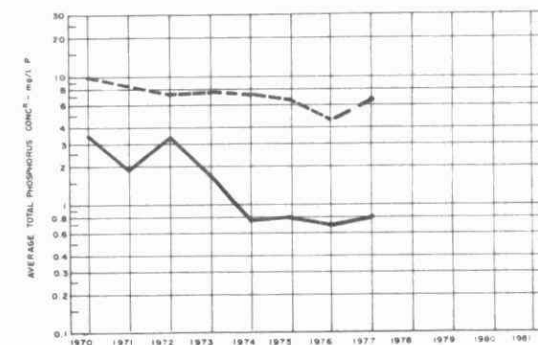
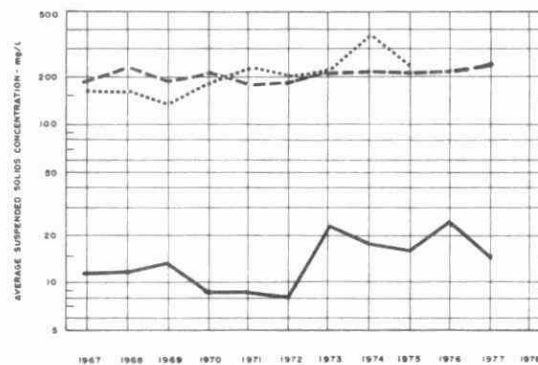
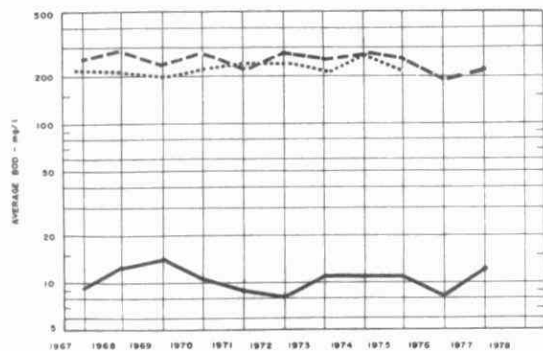
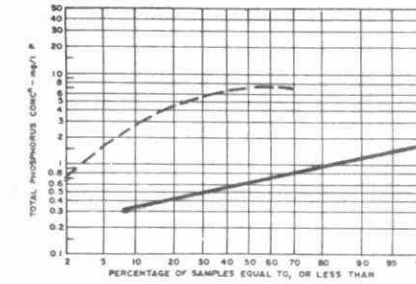
BOD₅



Susp. Solids



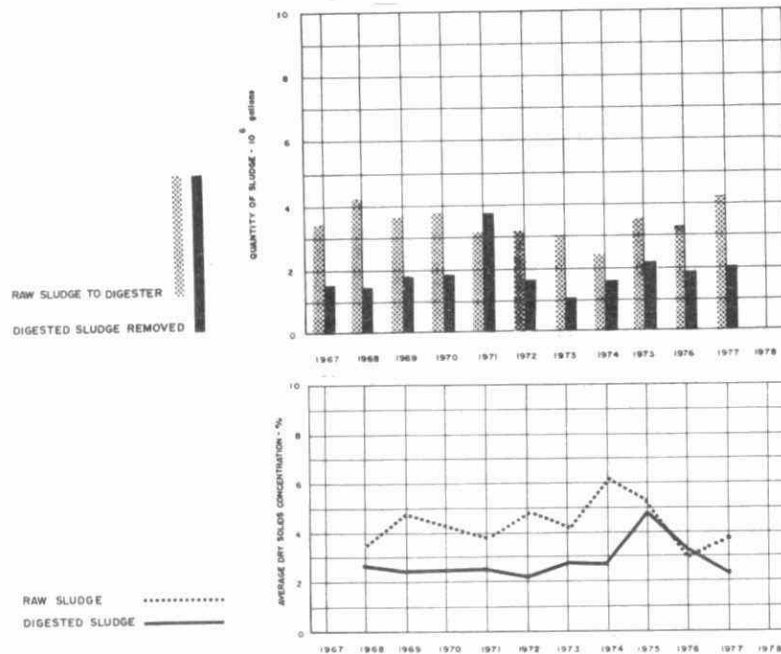
Phos.



TREATMENT DATA

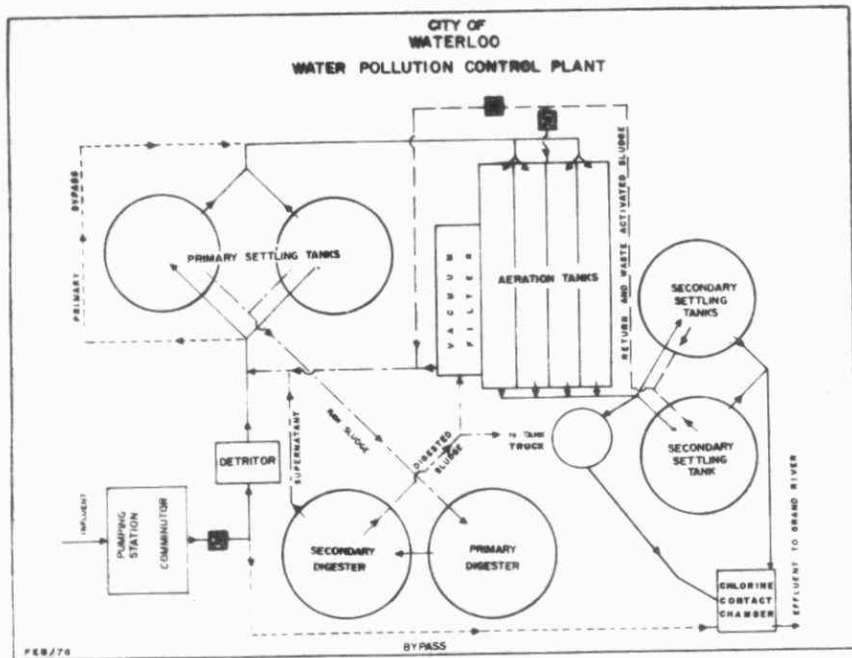
MONTH	NO. 1 PLANT (old plant) A								NO. 2 PLANT (new plant) B							
	AVG DAILY FLOW mil gal	PRIM EFF		SEC EFF		AERATION			AVG DAILY FLOW mil gal	PRIM EFF		SEC EFF		AERATION		
		BOD mg/l	S S mg/l	BOD mg/l	S S mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000ft ³ /lb BOD		BOD mg/l	S S mg/l	BOD mg/l	S S mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000ft ³ /lb BOD
JAN	.36	73	183	8	11	4100	.03	7.4	1.2		447		14	6000		
FEB	.40	300	308	8	14	4100	.12	1.5	1.2	315	289	8	14	6900	.14	
MAR	.54	280	261	8	12	4500	.14	1.2	2.3	265	279	12	15	5700	.28	
APR	.49	165	226	10	10	5200	.06	2.1	2.2		330		17	6500		
MAY	.50		557		10	4200			1.9	188	394	11	9	5300	.18	4.2
JUNE	.49	138	98	7	9	3300	.09	3.8	1.7	54	139	5	11	3800	.06	15.4
JULY	.45	140	176	3	7	2700	.10	2.8	1.4	180	140	10	2	6500	.10	4.0
AUG	.51	210	200	8	9	3300	.14	1.7	1.6	230	238	1	9	3900	.25	3.7
SEPT	.41		253		19	2500			2.0	610	754	90	30	3000	.11	1.2
OCT	.59	170	160	8	18	6100	.07	3.6	1.9	180	287	12	30	6000	.15	3.5
NOV	.57	180	186	6	11	4600	.09	3.5	1.9	164	276	7	12	5400	.15	
DEC	.67		195		14	4800			2.6		185		14	6000		
TOTAL																
AVG	.50	184	218	8	12	4100	.09	3.1	1.8	231	318	17	16	5400	.16	5.3

Digestion



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	SLUDGE HAULED cubic yards
				QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %		
JAN	31	2.9	5.8	322	3.1	38	109	3.3	52		650
FEB	21	2.7	6.1	248	4.0	48	263	.9	61		1564
MAR	44	2.6	2.9	320	4.4	37	154	2.8	93	.1	915
APR	58	2.6	3.3	300			116				692
MAY	68	2.9	3.8	394			261			.1	1553
JUNE	63	2.7	2.7	404			160				962
JULY	54	2.8	4.7	435			136			.1	812
AUG	64	3.0	4.5	395			157			.1	934
SEPT	64	2.6	3.6	237			109			.1	650
OCT	55	2.8	3.5	248			164				975
NOV	49	2.6	3.7	524			261			.1	1551
DEC	55	2.3	2.9	383			115				682
TOTAL	626	32.5	-	4210	-	-	2005	-	-	-	11248
AVG	.8 cubic feet/mil gal	2.7	3.9	351	3.8	41	167	2.3	69	.1	937



DESIGN DATA

PROJECT City of Waterloo WPCP

PROJECT NOS. 2-0022-58
2-0203-66

DESIGN FLOW 6.0 mgd*

DESIGN POPULATION 30,000

BOD - Raw Sewage 300 mg/l
- Removal 90%

SS - Raw Sewage 270 mg/l
- Removal 90%

Primary Sedimentation

Type: Dorr
Size: Two 75' dia x 13' swd
Ret (0.772 mil gal)
Loading: Surface, 680 gal/ft
Weir, 12,700 gal/1
Retention: 3.09 hours
Loading: Surface, 680 gal/ft²/day
Weir, 12,700 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air, single-pass with turbine aerators
Size: Four 134' x 32½' x 15½' (1.68 m Ret) (1.68 mil gal)
Retention: 6.7 hours

Diffusers

(a) Spargers (66/tank)
(b) "Lightnin'" Turbine (3/tank)

Air Supply

Type: Satorbilt
Size: Two 3,750 cfm

Secondary Sedimentation

Size: Two, 65' dia x 10' swd
One, 90' dia x 10' swd
(855,000 gal)
Retention: 3.4 hr

PRIMARY TREATMENT

Comminution

One Worthington

Sewage Lift Station

Type: Canada Pump
Size: Two 2900 gpm @ 32' tdh (el)
One 5000 gpm @ 32' tdh (diesel)

Grit Removal

Type: Dorr Detritor
Size: Two 14' x 14' x 1.6' (3,900 gal)
Retention: 0.94 min

CHLORINATION

Type: Wallace & Tiernan
Size: One, 500 lb/day

OUTFALL

- to Grand River

SLUDGE HANDLING

Digestion System - Two-stage

Primary - fixed cover
Type: Dorr draft tubes (3)
Size: One 80' x 21½' swd
(124,500 cu ft or 0.776 mil gal)
Loading: 3.5 lb/cu ft/mo

Secondary -
Size: One 80' dia x 20' swd
(117,000 cu ft or 0.73 mil gal)
Total Loading: 1.5 lb/cu ft/mo
Liquid sludge haulage.
Vacuum Filter

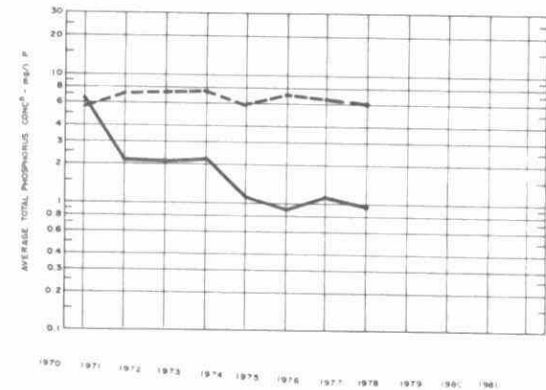
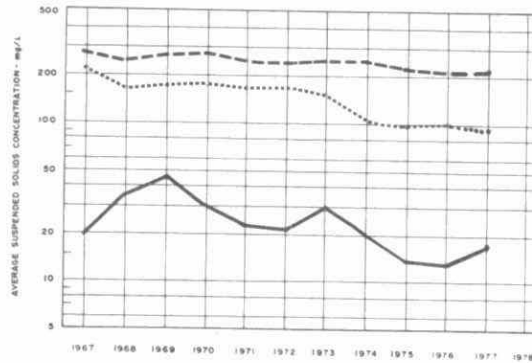
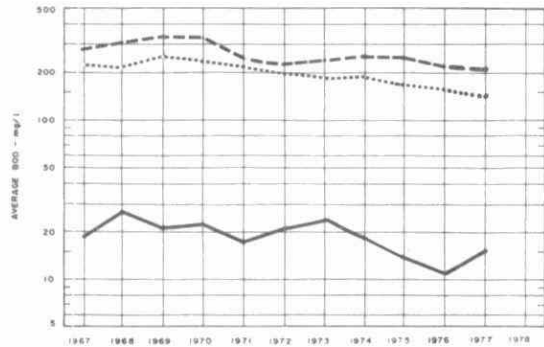
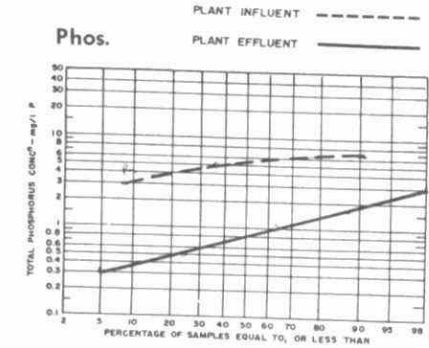
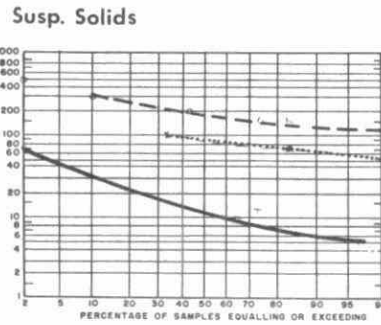
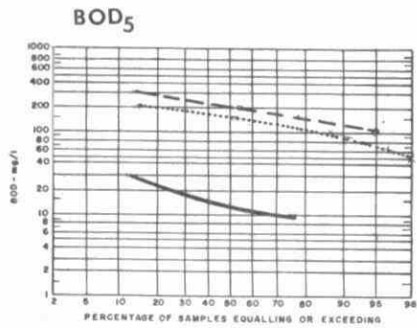
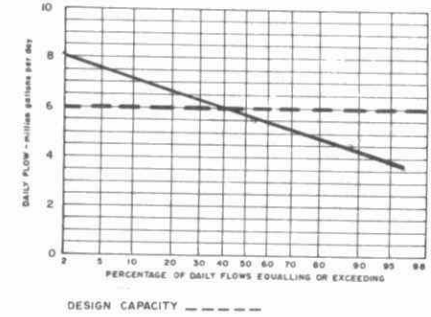
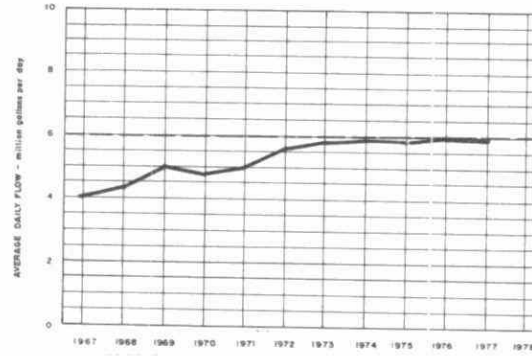
Type: Koline-Sanderson
Size: One 300 sq ft

PLANT PERFORMANCE

WATERLOO WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	mg/l P	mg/l P
	million gallons	mil gal	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P			
JAN	158	5.0	6.0	210	16	92	306	236	9	96	358	6.6	0.5
FEB	154	5.6	7.4	262	20	92	371	212	13	94	305	6.6	1.4
MAR	219	7.0	10.1	200	15	93	404	175	23	87	332	6.0	1.0
APR	193	6.4	8.6	234	17	93	419	229	20	91	404	5.1	0.8
MAY	171	5.5	6.5	227	16	93	360	250	14	94	403	6.3	0.6
JUNE	168	5.6	6.7	216	14	94	339	240	15	94	378	6.1	0.9
JULY	155	5.0	7.4	257	10	96	382	220	17	92	314	5.6	0.8
AUG	171	5.5	8.9	205	15	93	324	224	16	93	355	5.8	0.8
SEPT	179	6.0	8.5	273	14	95	464	236	15	94	396	5.7	0.8
OCT	197	6.4	7.5	118	11	91	211	161	14	91	290	5.5	0.9
NOV	185	6.2	7.6	204	27	87	327	250	25	90	416	6.5	1.4
DEC	187	6.0	8.7	218	32	85	347	170	33	81	256	6.1	1.3
TOTAL	2137	-	-	-	-	-	4189	-	-	-	4274	-	-
AVG.	178	5.9	10.1	212	16	92	349	218	18	92	356	6.0	0.9
No. of Samples	-	-	-	55	58	-	-	207	209	-	-	92	166

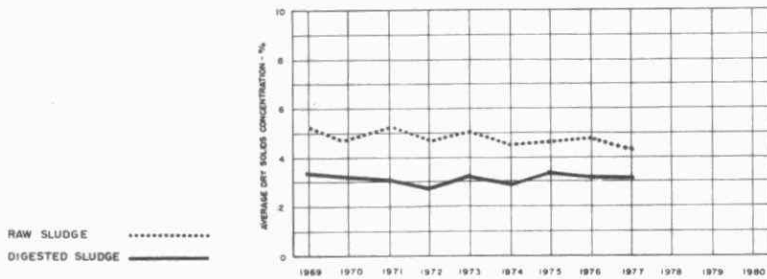
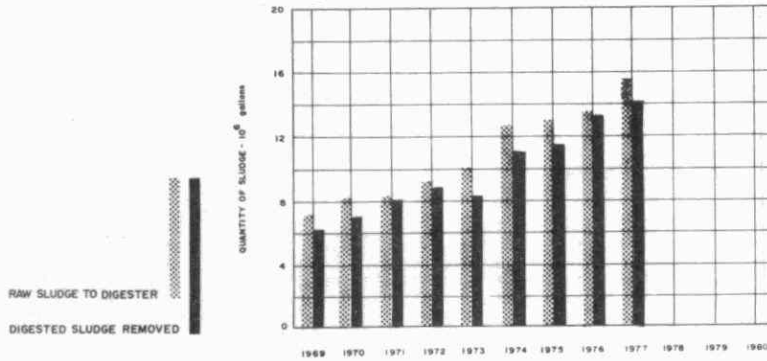
PROCESS DATA FLOWS



TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL								
	QUANTITY REMOVED cubic feet	Cl ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M	AIR 1000 m ³ lb BOD	RAW SLUDGE			DIGESTED SLUDGE				SUPER-NATANT T. S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ⁶ gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 ⁶ gallons	TOTAL SOLIDS %	VOL SOLIDS %	TOTAL SOLIDS %		
JAN	100	5.2	3.2	180	95	3000	.18	.7	1.21	4.9	70	1.12	3.2	55		6624	
FEB	120	4.9	3.2	211	92	2600	.27	.5	1.12	4.6	72	1.08	2.6	58		6384	
MAR	432	6.5	3.0	162	99	3000	.23	.5	1.26	4.2	68	1.34	3.0	54		7936	
APR	220	5.5	2.9	164	113	2700	.23	.6	1.21	4.3	69	1.00	3.1			5936	
MAY	105	5.8	3.4	163	108	2500	.21	.7	1.43	4.8	65	1.39	3.4	59		8224	
JUNE	160	7.1	4.0	196	118	2600	.25	.6	1.35	4.5	70	1.27	2.8	55		7536	
JULY	220	5.0	3.2	159	99	2700	.17	.8	1.39	2.9	55	1.14	3.6	54		6752	
AUG	340	5.1	3.0	140	100	2600	.18	.8	1.32	4.6	55	1.18	3.5	52		7040	
SEPT	225	5.2	2.9	96	86	2200	.16	1.1	1.30	4.4	61	1.06	3.7	49		6336	
OCT	265	5.4	2.8	87	79	2400	.14	1.2	1.27	4.2	62	1.12	3.5	48		6656	
NOV	270	4.6	2.5	118	81	2500	.17	1.0	1.32	4.1	70	1.28	2.9	51		7616	
DEC	180	7.8	4.2	132	82	2300	.20	.9	1.29	3.7	69	1.14	3.1	56		6800	
TOTAL	2637	68.1	-	-	-	-	-	-	15.47	-	-	14.09	-	-	-	83834	
AVG.	1.2 (cu. ft./ml. gal)	5.7	3.2	146	95	2600	.20	.8	1.29	4.3	66	1.17	3.2	54		6987	

Digestion



DESIGN DATA

PROJECT	Woolwich Twp. (Elmira) WPCP	<u>PRETREATMENT -- INDUSTRIAL WASTES</u>	<u>Secondary Sedimentation</u>
PROJECT NO.	2-0096-61	Type -- Balancing tank plus neutralization facilities	Type: Rex Chainbelt Size: Two 45' dia x 7' swd (22,300 cu ft or 139,000 gal)
DESIGN FLOW	Municipal Industrial Total	0.50 mgd <u>0.18 mgd</u> 0.68 mgd	Retention: 4.9 hours Loading: Surface, 214 gal/ft ² /day Weir, 2,400 gal/ft/day
DESIGN POPULATION	5,000	<u>PRIMARY TREATMENT</u>	
		<u>Screening</u>	
BOD -		One coarse manually-cleaned bar screen	<u>CHLORINATION</u>
Municipal	170 mg/l		Type: F & P
Industrial	<u>1100 mg/l</u>	<u>Grit Removal</u>	<u>Chlorine Contact Chamber</u>
Combined	420 mg/l	Type: Grit channels, manually cleaned	Size: Two 30' x 6' x 4.74' (1,700 cu ft or 10,600 gal)
SS -		Primary Sedimentation	Retention: 22.5 min
Municipal	300 mg/l	Type: Link Belt	
Industrial	<u>320 mg/l</u>	Size: Two 40' dia x 8' swd (125,000 gal)	<u>OUTFALL</u>
Combined	306 mg/l	Retention: 4.42 hours Loading: Surface, 270 gal/ft ² /day Weir, 2,700 gal/ft/day	- to Cananagigue Creek

SECONDARY TREATMENT

Aeration Tanks

Type: Mechanical aeration
Size: Four 30' x 30' x 14.2' (48,00 cu ft
or 300,000 gal)
Retention: 10.6 hours

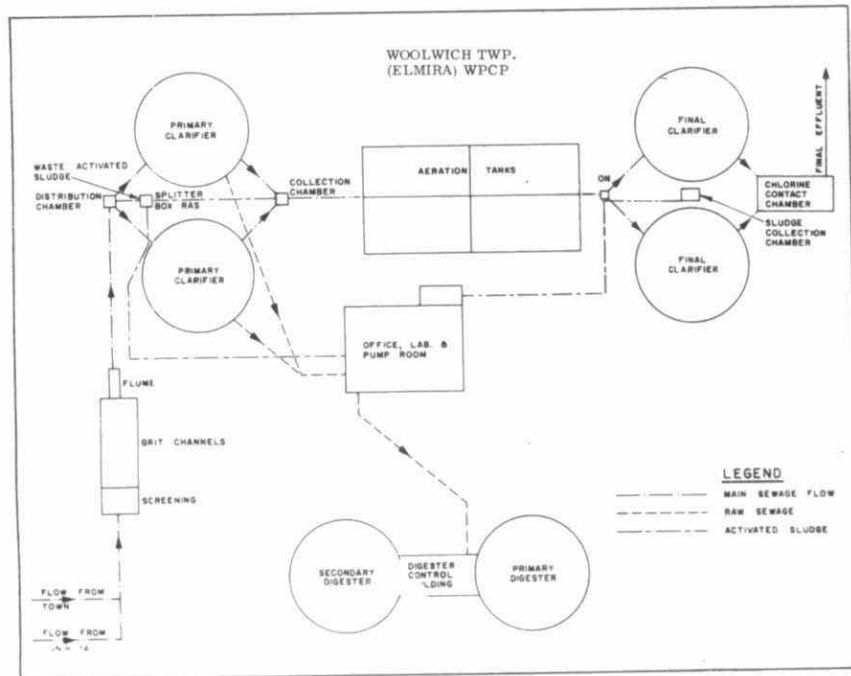
Aerators

Type: Four Ames-Crosta

SLUDGE HANDLING

Digestion System

Type: Two-stage digestion
Primary - One 30' dia tank with two
Dorr mixers (97,100 gal)
Secondary - One 30' dia tank (15,200
cu ft or 94,700 gal)



PLANT PERFORMANCE
SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	2.7	.09	.09	1025				38				1.7	
FEB	2.9	.11	.15	1038				74				1.2	
MAR	3.9	.13	.18	856				61				2.6	
APR	3.7	.12	.13	625				74				1.5	
MAY	3.6	.12	.13	488				163				1.5	
JUNE	3.5	.12	.14	408				108				2.2	
JULY	2.7	.09	.13	240				125				1.4	
AUG	2.6	.09	.14	225				70				1.5	
SEPT	2.7	.09	.17	340				81				2.2	
OCT	3.9	.12	.22	255				78				1.6	
NOV	3.7	.12	.17	315				72				1.4	
DEC	3.4	.11	.17	680				40				1.5	
TOTAL	39.3	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	3.3	.11	.22	544				82				1.8	
No. of Samples	-	-	-	49				48				48	

WOOLWICH TWP. (ELMIRA) WPCP

Ontario

PLANT PERFORMANCE
SEWAGE

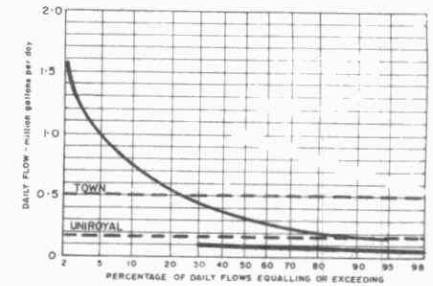
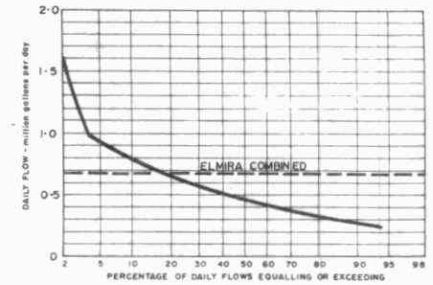
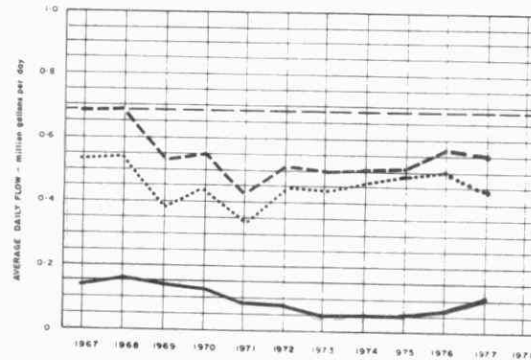
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	6.9	.22	.32	240				198				10.2	
FEB	8.4	.32	.83	210				253				9.5	
MAR	29.9	.96	1.94	88				117				4.9	
APR	17.0	.57	1.05	126				127				6.2	
MAY	10.9	.35	.51	133				171				7.9	
JUNE	9.2	.31	.64	269				171				8.5	
JULY	7.2	.23	.50	174				179				9.4	
AUG	9.3	.30	.69	192				136				7.7	
SEPT	14.8	.49	1.40	166				193				8.8	
OCT	17.5	.57	1.97	180				175				6.7	
NOV	13.2	.44	.71	138				171				5.8	
DEC	16.3	.52	1.41	102				162				6.9	
TOTAL	160.9	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	13.4	.44	1.97	169				171				7.7	
No. of Samples	-	-	-	49				49				49	

Ontario

PLANT PERFORMANCE
SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	9.5	.31	.41	393	19	95	36	233	57	88	17	10.2	2.7
FEB	11.2	.43	.98	363	20	94	39	251	46	86	23	8.5	2.7
MAR	34.9	1.12	2.07	170	15	91	54	97	35	64	22	3.7	1.4
APR	20.6	.67	1.19	178	17	90	33	108	41	62	14	5.2	2.2
MAY	14.6	.47	.60	203	17	92	27	169	41	76	19	8.2	2.0
JUNE	12.7	.42	.77	254	13	95	31	140	37	74	13	6.0	1.7
JULY	9.8	.32	.60	193	11	94	18	204	33	84	17	8.1	3.1
AUG	11.9	.39	.83	200	7	97	23	144	25	83	14	6.2	2.4
SEPT	17.5	.58	1.55	166	10	94	27	200	23	89	31	5.8	3.0
OCT	21.7	.70	2.19	146	18	88	28	149	49	67	21	5.9	3.1
NOV	16.9	.57	.87	148	22	85	21	166	114	31	9	5.5	4.4
DEC	19.7	.63	1.58	183	10	95	34	157	34	78	24	6.1	1.1
TOTAL	201.0	-	-	-	-	-	404	-	-	-	247	-	-
AVG.	16.8	.55	2.19	216	15	93	34	168	45	73	21	6.5	2.5
No. of Samples	-	-	-	49	48	-	-	49	47	-	-	49	46

PROCESS DATA
FLOWS

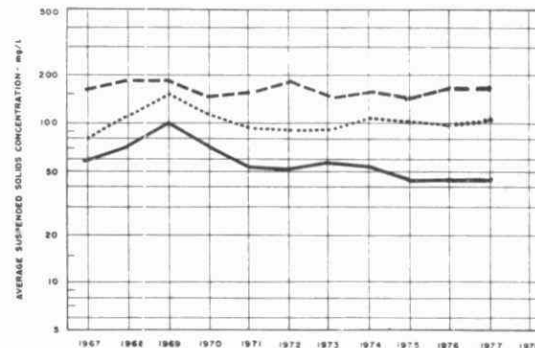
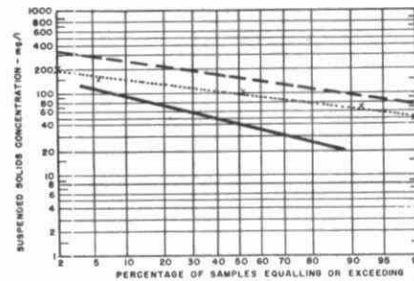


TREATMENT DATA

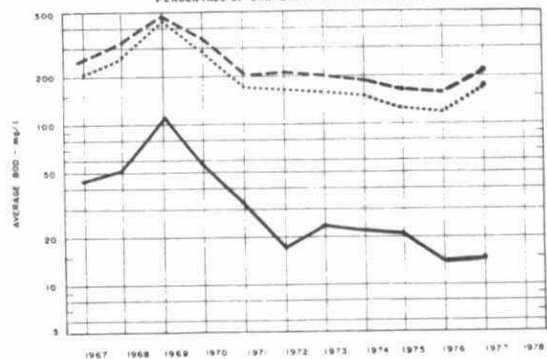
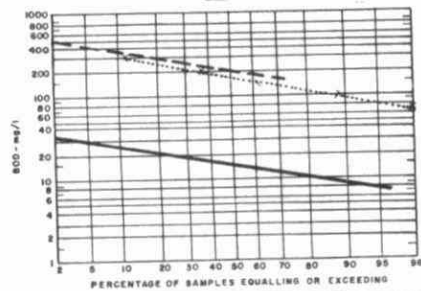
MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		CL ₂ USED pounds	AVG DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ /lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER NATANT T.S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 gallons	TOTAL SOLIDS %	VOL SOLIDS %		
JAN	39	287	3.2	333	133	3200	.10		45	6.7	72					267
FEB	46	233	2.1	339	128	3300	.10		78	6.3	65					462
MAR	93	339	1.0	164	93	3000	.20		66							393
APR	38	368	1.8	165	105	3100	.12		61							364
MAY	37	352	2.4	180	107	4400	.06		73	5.2	69					432
JUNE	50	322	2.5	186	91	3700	.07		106	4.5	58					635
JULY	54	323	3.3	131	102	4400	.03		45							268
AUG	56	280	2.3	137	81	3000	.06		64	5.7	60					383
SEPT	41	248	1.4	132	97	3500	.07		42	5.3	63					250
OCT	39	268	1.2	138	144	3200	.10		25							150
NOV	28	345	2.0	126	110	5500	.04		60							358
DEC	20	242	1.2	137	80	3600	.08		68							401
TOTAL	541	3607	-	-	-	-	-	-	733	-	-	-	-	-	-	4363
AVG.	2.7 cu ft/mgd gal	301	2.2	181	106	3700	.09		61	5.6	65					364

PLANT INFLUENT -----
 PRIMARY EFFLUENT
 PLANT EFFLUENT _____

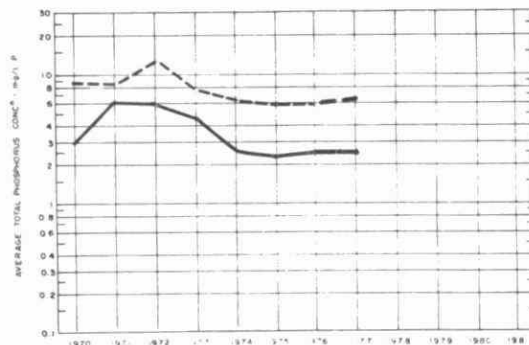
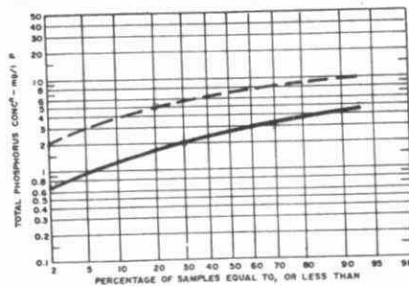
Susp. Solids



BOD₅



Phos.



REGION 3
Central

DESIGN DATA

PROJECT	City of Burlington Drury Lane WPCP
PROJECT NO.	2-0051-60
TREATMENT	Activated Sludge
DESIGN FLOW	2.5 mgd
DESIGN POPULATION	30,000
BOD - Raw Sewage	200 mg/l
- Removal	90%
SS - Raw Sewage	180 mg/l
- Removal	90%

PRIMARY TREATMENT

Screening

1" bar screens

Grit Removal

Type: Grit channels
Retention: 0.8 min

Primary Sedimentation

Type: Walker Process
Size: Two 49.3' x 18' x 12.25'
(135,700 gal)

Retention: 1.3 hr
Loading: Surface, 1400 gal/ft²/day
Weir, 17,100 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air; triple-pass
Size: Two tanks, each with
2 passes 118' x 18' x 10.7'
1 pass 85.5' x 18' x 10.7'
(833,000 gal. total)
Retention: 8.0 hours

Air Supply

One Sutorbilt - 1500 cfm
Two Roots-Connerville - 750 cfm

Diffusers - (each tank)

1) 132 Schumacher Brandel tubes in
first two passes

2) 41 Spargers on 2' centres in third
pass

Secondary Sedimentation

Type: Rex Unitube Tow-Bro
Size: Two 50' dia x 10.5' swd
(260,000 gal)
Retention: 2.5 hr
Loading: Surface, 1000 gal/ft²/day
Weir, 8500 gal/ft/day

CHLORINATION

Type: Wallace & Tiernan

Chlorine Contact Chamber

- in outfall

OUTFALL

- to Lake Ontario

SLUDGE HANDLING

Digestion System

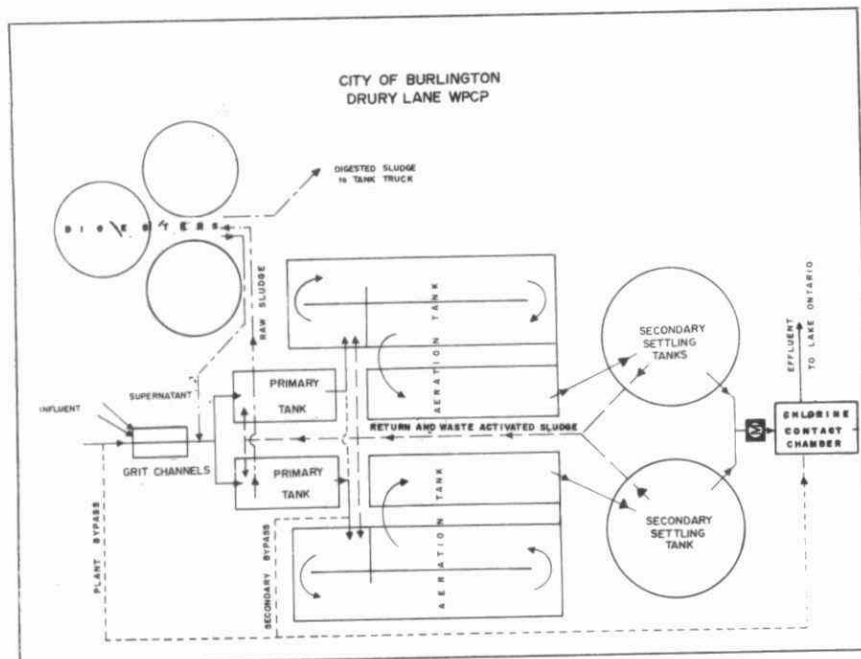
Type: Two-stage

Primary --

Size: Two 40' dia tanks (313,000 gal
total)
Loading: 2.7 lb/ft³/mo

Secondary --

Size: One 40' dia tank (143,000 gal)
Loading Total: 1.9 lb/ft³/mo

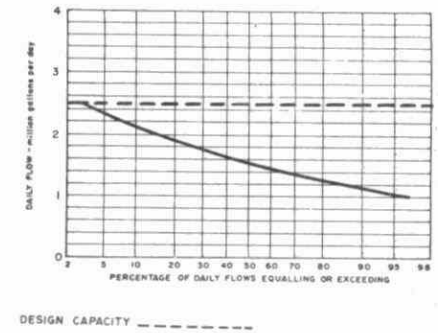
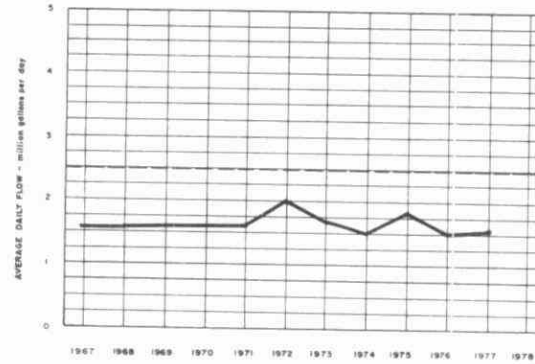


PLANT PERFORMANCE

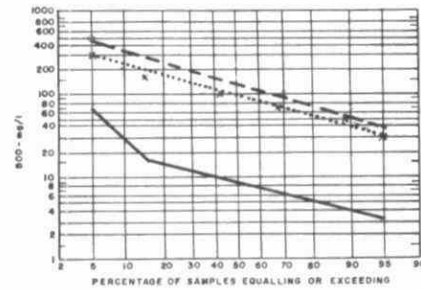
SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	39	1.2	1.6	130	16	88	44	220	11	95	81	7.2	1.6
FEB	44	1.6	2.1	345	11	97	146	348	14	96	146	7.6	1.4
MAR	63	2.0	2.7	120	40	67	50	210	16	92	122	3.5	1.2
APR	54	1.8	2.6	150	9	94	76	186	9	95	96	6.2	0.5
MAY	45	1.5	1.8	140	9	94	59	133	30	77	47	6.2	1.1
JUNE	46	1.6	2.1	195	13	93	85	201	10	95	89	8.2	0.9
JULY	41	1.3	2.1	75	5	93	29	281	15	95	110	6.1	0.5
AUG	39	1.3	1.5	110	4	96	41	315	8	97	120	6.9	0.9
SEPT	47	1.6	2.8	103	8	92	45	206	8	96	94	6.0	0.9
OCT	50	1.6	2.2	98	5	95	46	308	13	96	147	4.1	0.8
NOV	50	1.7	2.2	105	8	92	49	274	18	93	129	4.5	0.8
DEC	64	2.1	3.0	58	9	84	32	233	15	94	141	3.7	1.6
TOTAL	582	-	-	-	-	-	622	-	-	-	1350	-	-
AVG	49	1.6	MAXIMUM 3.0	141	12	91	52	246	14	94	112	5.9	1.0
No. of Samples	-	-	-	19	19	-	-	62	33	-	-	38	36

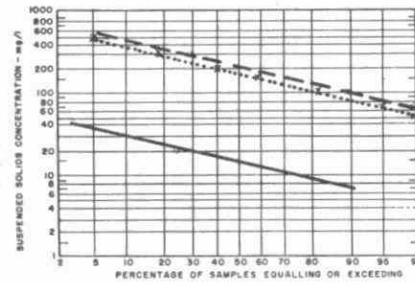
FLOWS



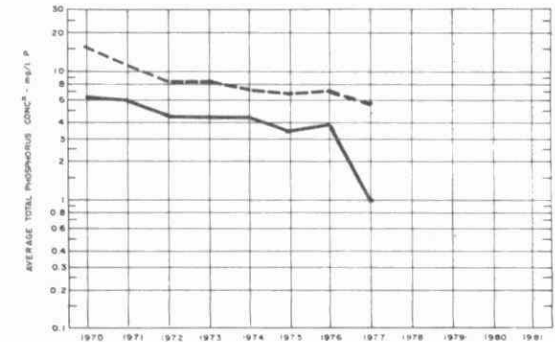
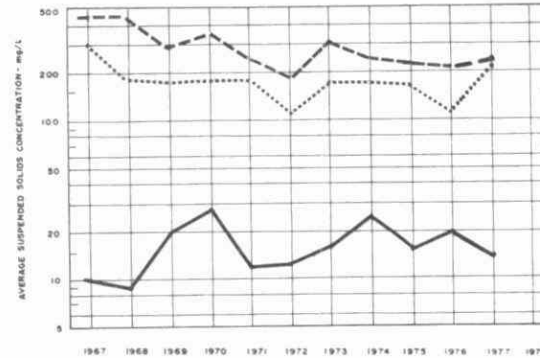
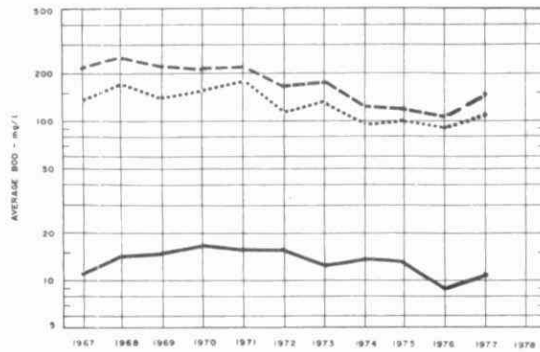
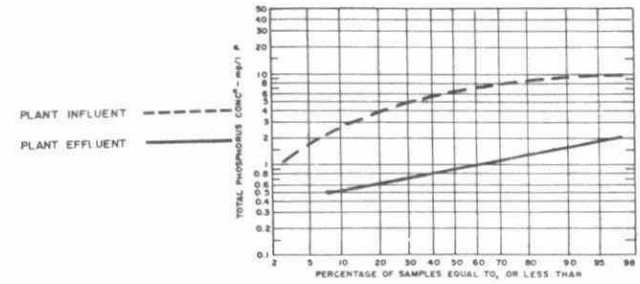
BOD₅



Susp. Solids



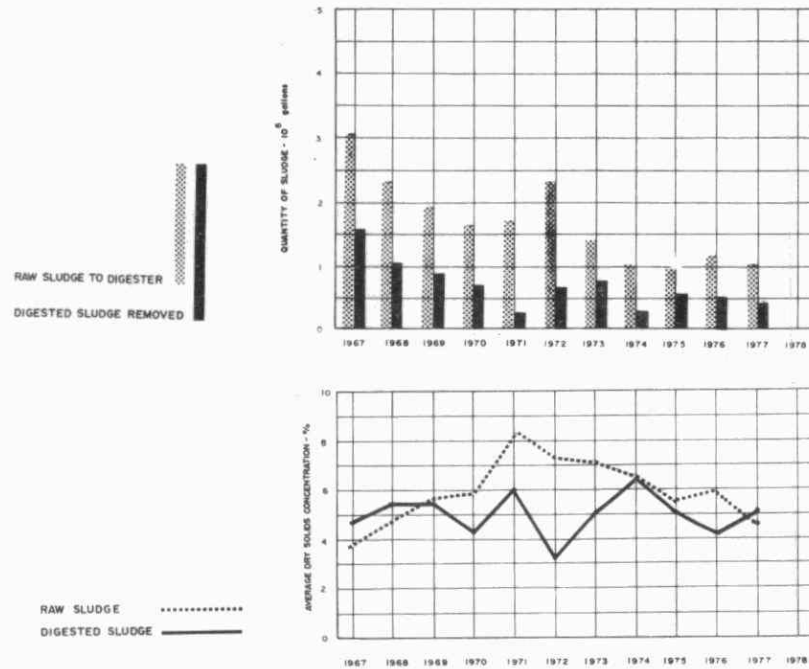
Phos.



TREATMENT DATA

BURLINGTON D. L. WPCP

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		CL ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT T. S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL SOLIDS %		
JAN	14			111	157	2700	.06	3.2	98	5.3	80	62	4.5	58		369
FEB	34			265	275	2400	.02	0.9	92	5.6	78	76	4.0			451
MAR	55			93	158	2300	.10	3.4	99	5.3	72	33	4.3	59		197
APR	27			80	144	2200	.08	2.5	96	5.3	74	39	4.8	56		234
MAY	4	.3	2.6	103	133	2300	.08	2.1	84	6.7	79	31	5.3	58		184
JUNE	7	1.1	2.3	50	192	2200	.04	5.7	117	6.9	80	38	4.9			229
JULY	7	1.1	2.6	65	247	2300	.04	3.8	97	3.3	74	39	6.4			229
AUG	17	1.2	3.0	108	299	2200	.07	2.2	115	5.0	67	32	5.1			187
SEPT	56	1.1	2.4	70	186	2200	.05	3.3	89	3.5	77	18	5.5			105
OCT	14	0.4	2.0	80	122	2300	.07	2.3	89	2.1	66	11	5.4			63
NOV	14			185	272	2400	.16	0.7	72	3.3	71	35	5.5			208
DEC	7			140	310	2400	.15	0.8	86	3.4	70	42	5.7	54		250
TOTAL	256	5.2	-	-	-	-	-	-	1134	-	-	456	-	-	-	2706
AVG.	0.4 (cu. ft./mi gal)	1.0	2.5	113	208	2300	.08	2.6	95	4.6	74	38	5.1	57		226



DESIGN DATA

PROJECT	City of Burlington Elizabeth Gardens WPCP
PROJECT NO.	2-0028-58
TREATMENT	Activated Sludge
DESIGN FLOW	0.750 mgd
DESIGN POPULATION	7,500
BOD - Raw Sewage	253 mg/l
- Removal	90-95%
SS - Raw Sewage	280 mg/l
- Removal	95%

LIFT STATION

Pumps (@ 35' tdh)

One Fairbanks-Morse	600 gpm (electric)
One Smart-Turner	250 gpm (electric)
One Smart-Turner	125 gpm (electric)
One Smart-Turner	300 gpm (gas)

PRIMARY TREATMENT

Comminution

Type: Barminutor
Size: Model B (18")

Grit Removal

Type: Air degritter (with 4 Colaflex diffusers)
Size: 14' x 8' x 7' (avg depth)
Retention: 10 min

Primary Sedimentation

Type: Dorr
Size: Two 22' dia x 9' swd (6250 gal)
Retention: 2 hours
Loading: Surface, 980 gal/ft²/day
Weir, 5,430 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air, Single-pass
Size: Two 98' x 19½' x 12'
(44,000 cu ft or 274,000 gal)
Retention: 8.8 hours

Air Supply

Two Hoffman Cyclo Blowers
Size: 750 cfm each

Diffusers

60 Colaflex diffusers per tank

Secondary Sedimentation

Type: Dorr
Size: Two 40' x 40' x 10' swd (8,600 gal)
Retention: 2.75 hours
Loading: Surface, 470 gal/ft²/day
Weir, 4,690 gal/ft/day

CHLORINATION

W & T 200 lb/day

Chlorine Contact Chamber

Retention: 10 min

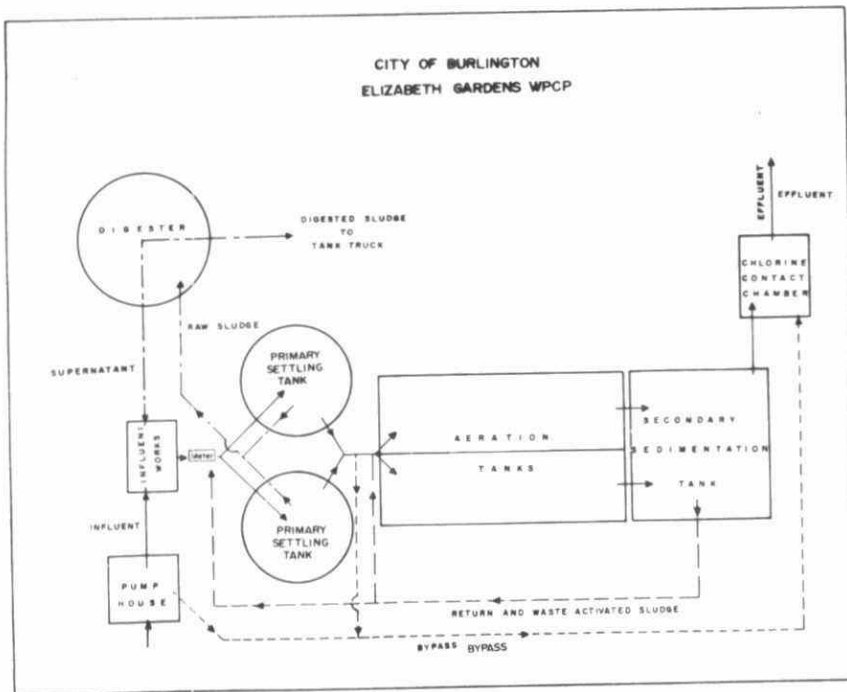
OUTFALL

- to Lake Ontario

SLUDGE HANDLING

Digestion System

Type: Single-stage with one Dorr-Oliver draft tube mixer
Size: One 45' dia x 20' swd (31,600 cu ft or 196,000 gal)
Loading: 1.6 lb/ft³/mo

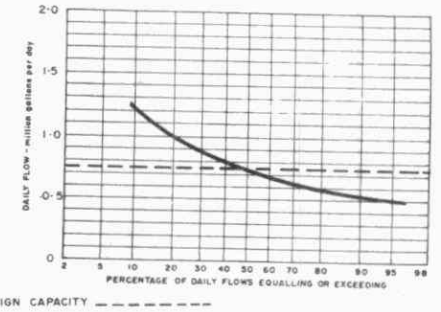
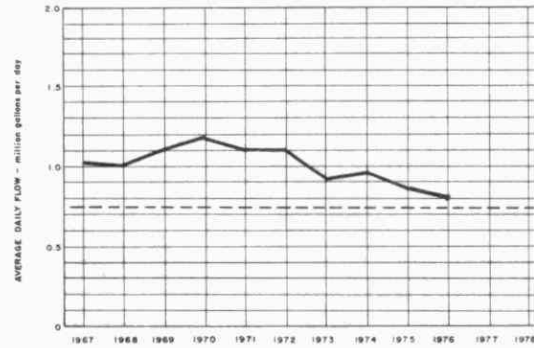


PLANT PERFORMANCE
SEWAGE

BURLINGTON E.G. WPCP

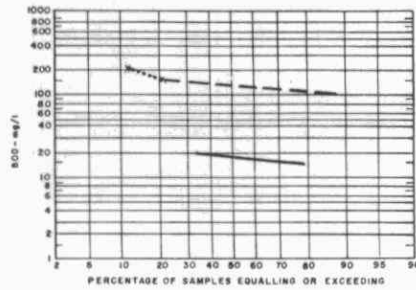
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	18.4	.59	.76	160	20	88	26	124	19	85	19	9.3	6.3
FEB	21.7	.79	1.31	120	23	81	21	147	12	92	29	7.7	5.2
MAR	31.6	1.02	1.56	50	12	76	12	81	13	84	22	5.2	3.2
APR	28.6	.95	1.52	115	15	87	29	126	9	93	34	6.9	4.6
MAY	20.9	.67	1.05	135	16	88	25	162	10	94	32	7.2	5.1
JUNE	8.7	.33	.88										
JULY													
AUG													
SEPT													
OCT													
NOV													
DEC													
TOTAL	129.9	-	-	-	-	-	134	-	-	-	149	-	-
AVG		.80	1.56	120	17	86	22	127	12	91	24	6.5	4.0
No. of Samples	-	-	-	10	10	-	-	10	10	-	-	10	10

FLOWS

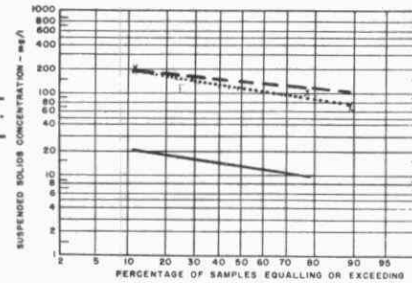


BOD₅

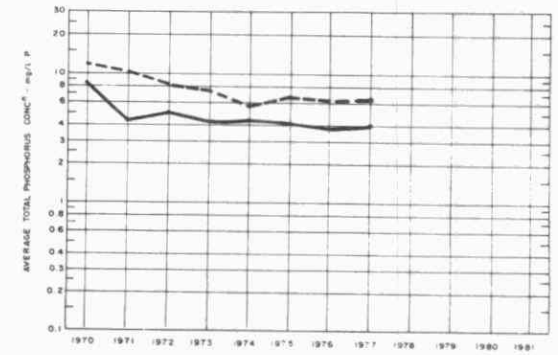
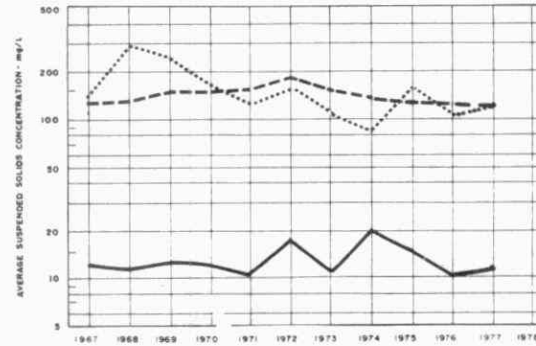
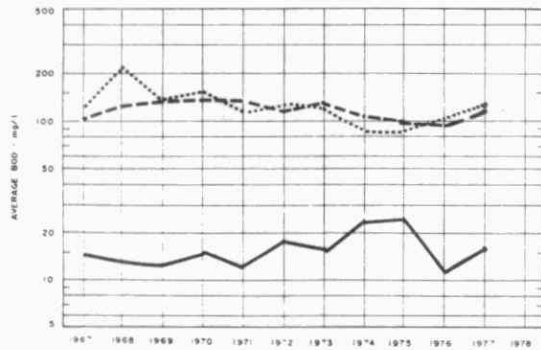
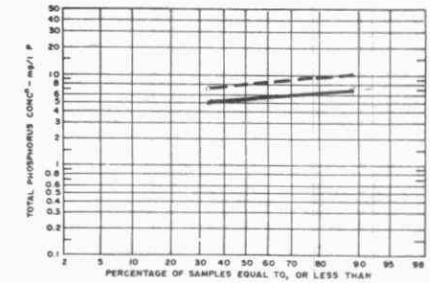
PLANT CLOSED



Susp. Solids



Phos.

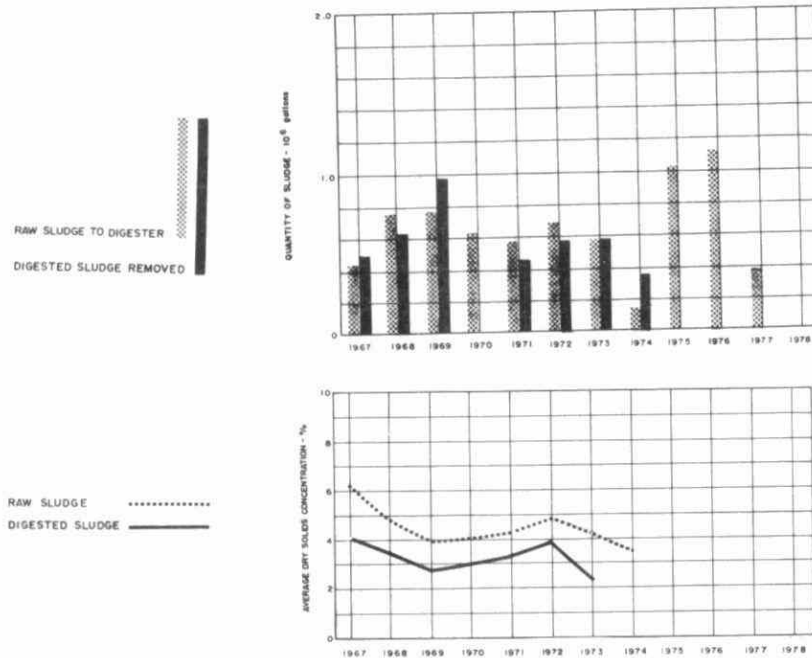


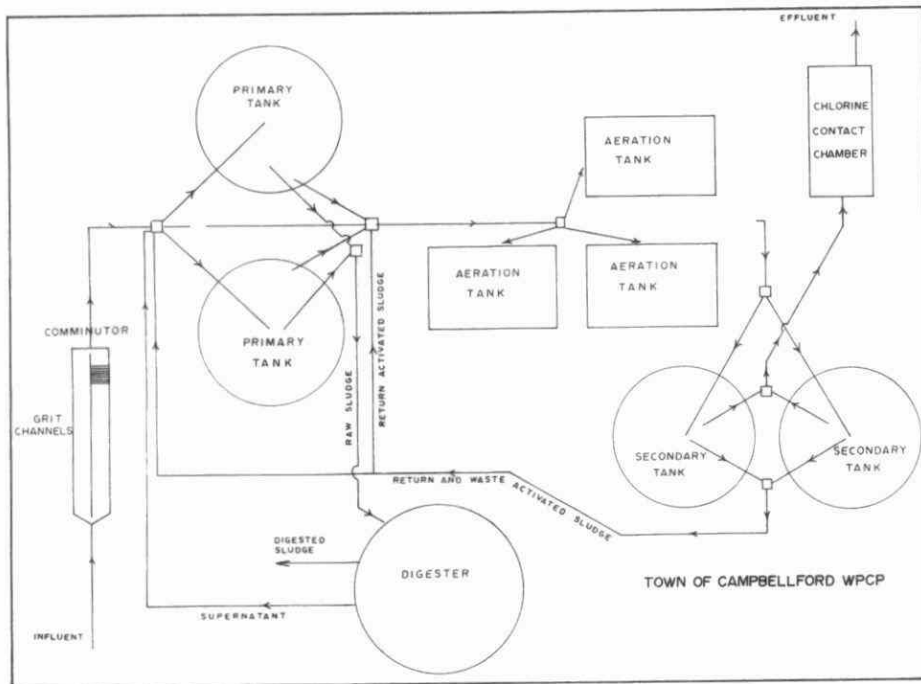
TREATMENT DATA

BURLINGTON E.G. WPCP

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
	QUANTITY REMOVED cubic feet	CL ₂ USED pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 HP LB BOD	RAW SLUDGE QUANTITY 10 ³ gallons	RAW SLUDGE TOTAL SOLIDS %	RAW SLUDGE VOL. SOLIDS %	DIGESTED SLUDGE QUANTITY 10 ³ gallons	DIGESTED SLUDGE TOTAL SOLIDS %	DIGESTED SLUDGE VOL. SOLIDS %	SUPER-NATANT T.S. %	AMOUNT HAILED cubic yards
JAN	10			195	130	1400	.03	14.1	76							451
FEB	35			115	125	1500	.02	18.9	48							287
MAR	25			46	57	1400	.12	3.2	67							400
APR	40			130	239	1300	.34	1.0	83							492
MAY	50	430	3.9	110	95	1100	.24	1.7	54							323
JUNE	20	215	2.5			1300			53							316
JULY																
AUG																
SEPT																
OCT																
NOV																
DEC																
TOTAL	180	645	-	-	-	-	-	-	381	-	-	-	-	-	-	2269
AVG.	1.4 cu. feet per gal	323	3.2	119	129	1300	.15	7.8								

Raw sludge to Skyway Plant.





DESIGN DATA

PROJECT Town of Campbellford WPCP
 PROJECT NO. 1-0028-66
 DESIGN FLOW 1.0 MIGD
 BOD - Raw Sewage 200 mg/l
 TREATMENT Activated Sludge
 DESIGN POPULATION 4200

PRIMARY TREATMENT

Grit Removal

Type: Channels, manually cleaned
 Size: Two 36'6" x 2'8" x 3'9"
 Flow Velocity: 1 fps

Screening

Type: Manually cleaned

Comminution

Type: Worthington model 15C-5

Primary Sedimentation

Type: Dorr-Oliver-Long S-7
 Size: Two 40' dia x 7' swd
 Retention: 2.4 hours
 Loading: Surface 400 gal/ft²/day
 Weir 4000 gal/ft/day

Outfall

- to the Trent River

SECONDARY TREATMENT

Aeration Tanks

Type: Mechanical
 Size: Three, each 55,000 gallons
 Retention: 4 hours
 Air Supply: Simon Carves, one aerator per tank

Secondary Sedimentation

Type: Dorr-Oliver-Long S-7
 Size: Two 45' dia x 9' swd
 Retention: 4.8 hours
 Loading: Surface 330 gal/ft²/day
 Weir 3540 gal/ft/day

CHLORINATION

Type: Wallace & Tiernan V800
 Size: One 400

Chlorine Contact Chamber

Retention: 30 minutes

DIGESTION SYSTEM

Type: Single stage
 Size: 30' dia x 25' swd

PUMPING STATION

P.S. #1

Three Crane Deming each 800 US gpm @ 38' tdh

P.S. #2

Two Flygt CP3100 each 400 US gpm @ 24' tdh

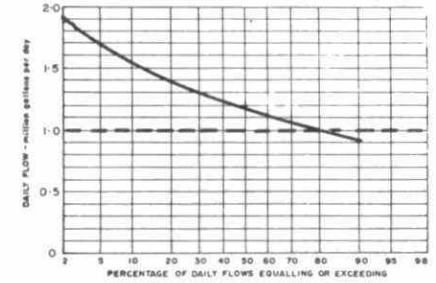
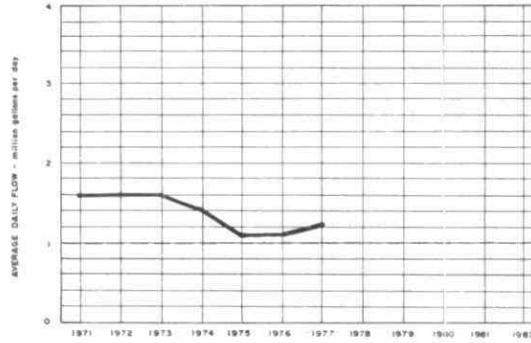
PLANT PERFORMANCE

SEWAGE

CAMPBELLFORD WPCP

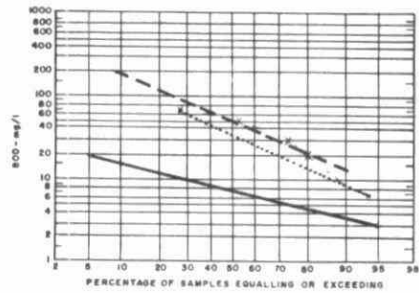
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	10 ³ pounds	INFLUENT	EFFLUENT	REDUCTION	10 ³ pounds	INFLUENT	EFFLUENT
	million gallons	ml. gal	mgd	mg/l	mg/l	%		mg/l	mg/l	%		mg/l P	mg/l P
JAN	27.2	.88	.94	19	4	79	4.1	40	5	88	9.5	1.6	1.3
FEB	25.7	.92	1.09	62	6	90	14.4	60	6	90	13.9	2.7	1.5
MAR	47.8	1.54	2.03	19	5	74	6.7	114	10	91	49.7	1.2	0.9
APR	38.8	1.29	1.95	3	14	0	0	34	7	79	10.5	0.4	0.8
MAY	39.8	1.28	1.52	103	6	94	38.6	115	7	94	43.0	2.5	1.0
JUNE	35.1	1.17	1.36	143	11	92	40.3	290	7	98	99.3	3.5	1.0
JULY	38.4	1.24	1.50	42	5	88	14.2	190	6	97	70.6	2.7	1.2
AUG	38.7	1.25	1.90	42	7	83	13.5	49	5	90	17.0	3.1	1.0
SEPT	33.4	1.11	1.37	23	8	65	5.0	46	5	89	13.7	6.5	1.0
OCT	37.6	1.21	1.65	69	10	86	22.2	99	15	85	31.6	2.3	0.9
NOV	33.9	1.13	1.62	143	14	90	43.7	114	9	92	35.6	3.6	1.1
DEC	46.7	1.51	1.98					74	9	88	30.2		
TOTAL	443.1	-	-	-	-	-	270.3	-	-	-	487.4	-	-
AVG.	36.9	1.21	MAXIMUM 2.03	69	8	88	22.5	118	8	93	40.6	2.9	1.1
No. of Samples	-	-	-	22	20	-	-	72	62	-	-	22	20

FLOWS



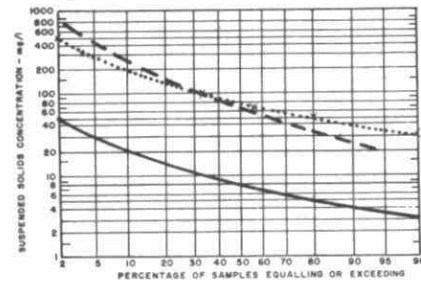
DESIGN CAPACITY - - - - -

BOD₅



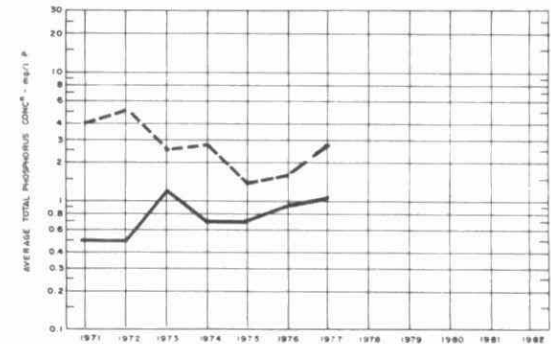
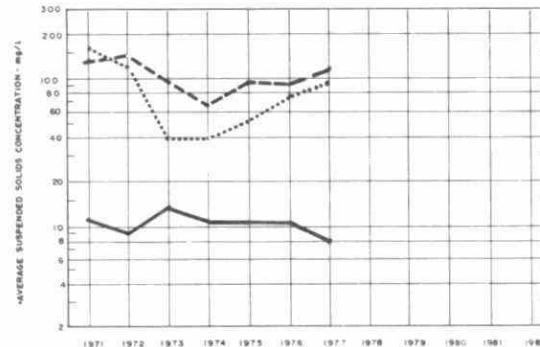
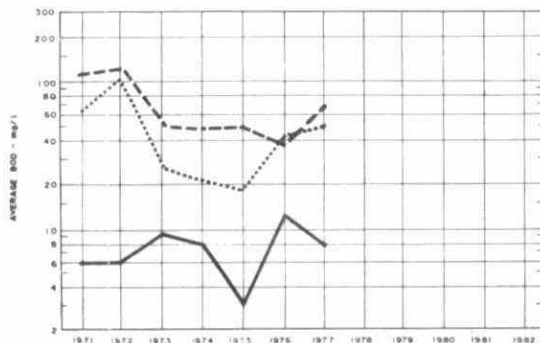
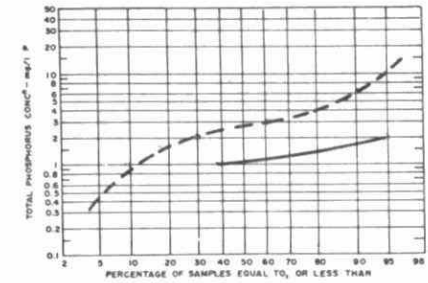
PLANT INFLUENT - - - - -
 PRIMARY EFFLUENT
 PLANT EFFLUENT - - - - -

Susp. Solids



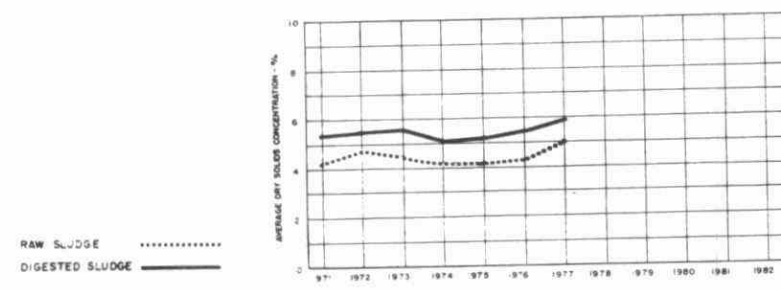
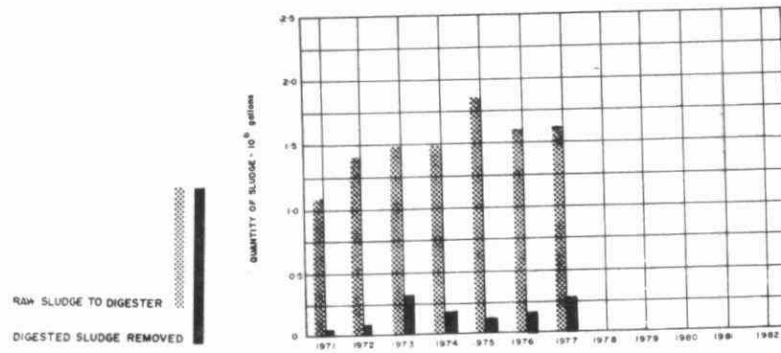
PLANT INFLUENT - - - - -
 PLANT EFFLUENT - - - - -

Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL								
		Cl ₂ USED pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT T. S. %	AMOUNT HAULED cubic yards	
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %			
JAN	11	587	2.2	55	126	3900	.08		134								
FEB	7	452	1.8	38	55	4200	.05		123								
MAR	18	560	1.2	17	92	4400	.04		138	6.2			5.7			4.5	
APR	15	508	1.3	12	73	4600	.002		132								
MAY	26	750	1.9	70	104	4300	.13		158	5.6	48	32	6.0	50	3.2	188	
JUNE	20	875	2.5	74	233	5000	.11		174	4.9	51				2.5		
JULY	14	985	2.6	75	140	4500	.12		150	4.7	54	35	6.3	48	1.7	210	
AUG	33	994	2.6	46	72	3700	.09		142	5.3	48	42	7.1	47	1.6	250	
SEPT	11	790	2.4	44	49	3600	.08		139	4.7	52	28	6.4	46	1.7	168	
OCT	11	598	1.6	68	49	3600	.14		137	4.5	54	14	6.0	46	2.1	84	
NOV	19	714	2.1		95	4200			130	5.0	58	70	4.8	48	2.8	420	
DEC	18	770	1.6		95	4300			102	4.4	55	30	4.7	48	1.8	180	
TOTAL	203	8583	-	-	-	-	-	-	1659	-	-	253	-	-	-	1500	
AVG.	0.4 cu ft/1000 gal	715	1.9	50	99	4200	.09		138	5.0	53		5.9	48	2.4		



DESIGN DATA

PROJECT Town of Halton Hills
(Georgetown) WPCP

PROJECT NO. 2-0017-58

TREATMENT Activated Sludge

DESIGN FLOW 1.50 mgd

DESIGN POPULATION 15,000

BOD - Raw Sewage 200 mg/l
- Removal 95%

SS - Raw Sewage 200 mg/l
- Removal 95%

PRIMARY TREATMENT

Screening

Type: Manually cleaned bar screen
Size: 3/4" spacing

Comminution

Type: C, P. Barminutor
Size: One Model C (24")

Sewage Lift Pumps

Type: Chicago Pump
Size: Two 2,900 gpm @ 60' tdh

Grit Removal

Type: Dorr Type WA Detritor
Size: One 12' x 12' x 1' 3" (1,120 gal)
Retention: 1.1 min

Primary Sedimentation

Type: Dorr Type A
Size: Two 35' x 35' x 10' swd
(24,500 cu ft or 153,000 gal)
Retention: 2.5 hours
Loading: Surface, 612 gal/ft²/day
Weir, 5,360 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Mechanical aeration; single-pass
Size: Two 112' x 28' x 13.25' (79,400 cu ft or 0.495 mil gal)
Retention: 7.9 hours

Aerators

- Eight Ames-Crosta

Secondary Sedimentation

Type: Dorr Type AZ
Size: Two 40' x 40' x 10' swd (32,000 cu ft or 200,000 gal)
Retention: 3.2 hours
Loading: Surface, 470 gal/ft²/day
Weir, 4,700 gal/ft/day

CHLORINATION

- One W & T 200 lb/day

Chlorine Contact Chamber

Size: One 45' x 15' x 6' deep (27,000 gal)
Retention: 26 min

OUTFALL

- to Silver Creek

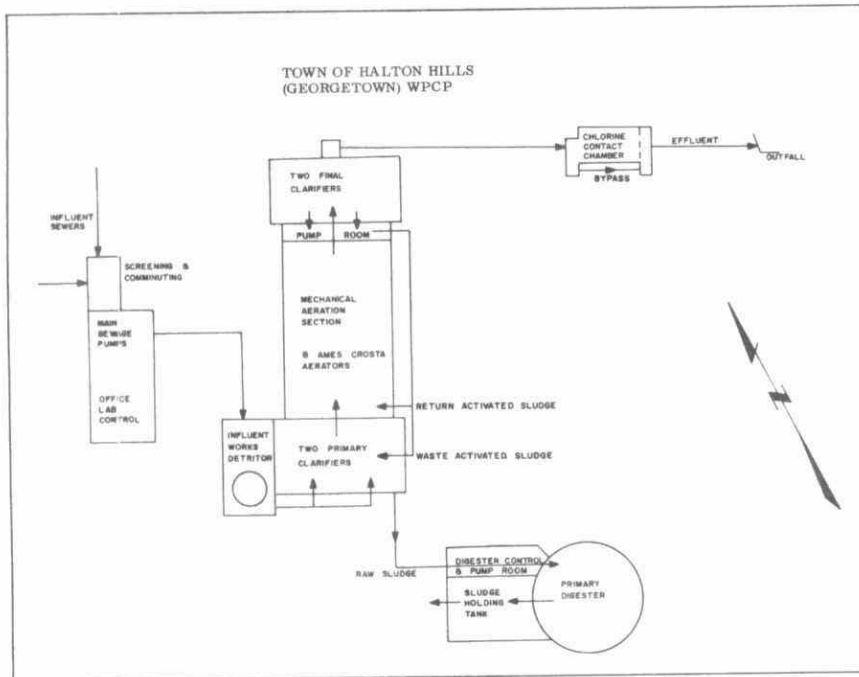
SLUDGE HANDLING

Digestion System

Type: Two-stage

Primary --
Type: Dorr draft tube mixers (3) on fixed steel roof
Size: One 66' dia x 22.6' (avg) (77,800 cu ft or 485,000 gal)
Loading: 1.1 lb/cu ft/mo

Secondary --
Size: One 34' x 34' x 16.25' (20,700 cu ft or 129,000 gal)
Total Loading: 0.87 lb/cu ft/mo



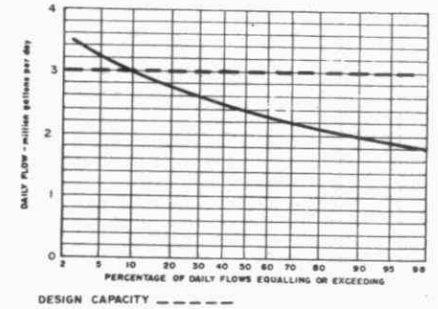
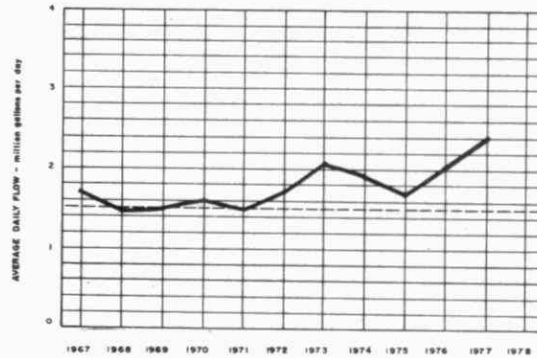
PLANT PERFORMANCE

HALTON HILLS (GEORGETOWN) WPCP

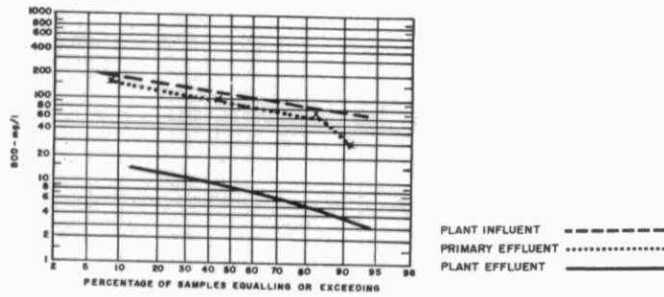
SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	65	2.1	2.3	230	10	96	143	364	13	99	228	8.4	3.7
FEB	60	2.2	2.7	125	5	96	72	210	19	91	115	7.0	1.6
MAR	71	2.3	3.1	95	5	96	64	147	19	87	91	4.7	2.2
APR	75	2.5	3.0					194	15	92	135		2.2
MAY	70	2.2	3.0	120	14	88	74	179	17	91	113	5.8	1.9
JUNE	72	2.4	2.9	150	16	89	96	174	21	88	110	8.0	2.2
JULY	69	2.2	2.9	110	6	96	72	199	21	89	123	7.0	0.5
AUG	73	2.4	2.8	70	6	91	47	199	28	86	125	4.2	0.6
SEPT	79	2.6	3.6	120	12	90	86	159	29	82	103	6.3	3.5
OCT	73	2.4	3.7	88	5	94	61	200	8	96	141	4.5	2.8
NOV	82	2.8	3.6	133	9	93	102	178	12	93	137	6.4	1.3
DEC	90	2.9	4.3					137	14	90	111		0.3
TOTAL	879	-	-	-	-	-	-	-	-	-	1556	-	-
AVG.	73	2.4	4.3	121	8	93	83	192	15	92	130	6.2	1.7
No. of Samples	-	-	-	13	15	-	-	59	84	-	-	13	86

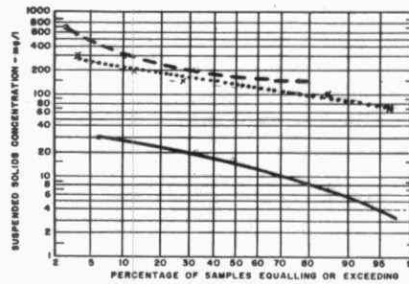
PROCESS DATA
FLOWS



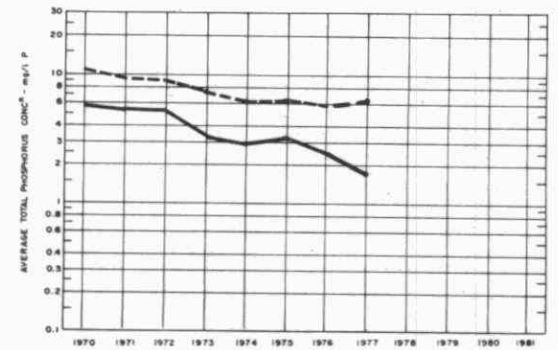
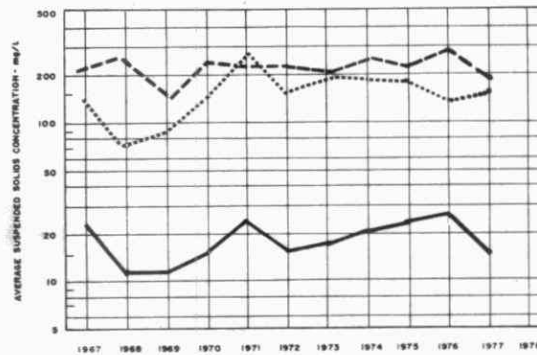
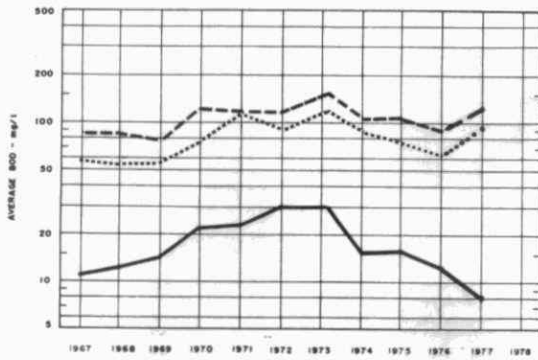
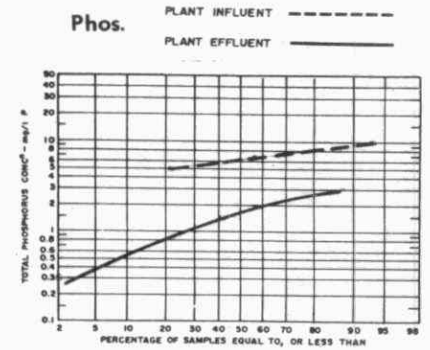
BOD₅



Susp. Solids



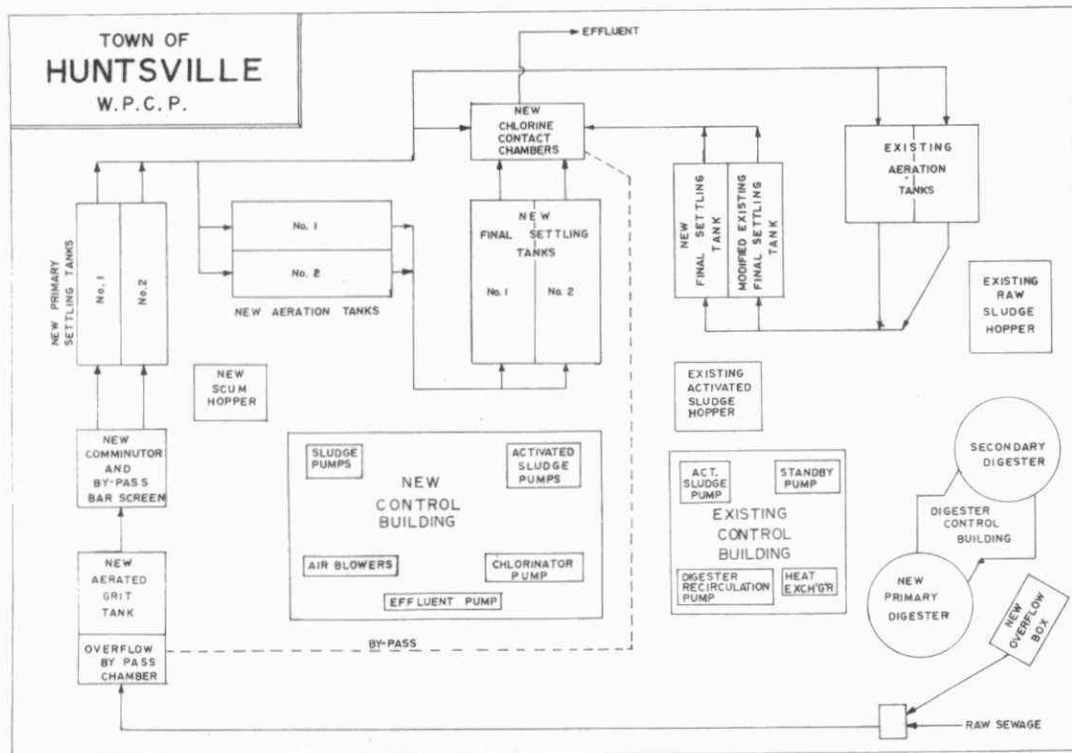
Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL								
	QUANTITY REMOVED cubic feet	Cl ₂ USED 10 ³ pounds	AVG DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M	AIR 1000 ft ³ 15 BOD	RAW SLUDGE			DIGESTED SLUDGE			NATANT T.S. %	AMOUNT HAULED cubic yards	
									QUANTITY 3 10 gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 3 10 gallons	TOTAL SOLIDS %	VOL SOLIDS %			
JAN	58	0.7	2.4	110	215	2100	.21		232	4.9	39	119					705
FEB	51	1.3	2.2	110	160	2800	.17		130	9.9	50	152					901
MAR	54	1.6	2.3	90	127	2200	.18		324	9.7	46	163					965
APR	49	1.7	2.3		113	2000			156	7.4	57	121	7.0	54			719
MAY	74	1.4	1.9	100	161	2200	.19		320	9.1	43	184	5.3	59			1092
JUNE	75	1.3	1.8	100	112	2500	.18		237	9.3	36	237					1407
JULY	98	1.4	2.0	75	127	2400	.13		262	6.5	38	45					268
AUG	67	1.8	2.4		89	2900			283	7.0	42	42					753
SEPT	69	1.2	1.5		118	2600			234	6.0	40	296	2.5	47			1757
OCT	72	0.9	1.2	38	126	2300	.08		322	6.3	38	113	3.3	41			671
NOV	73	1.0	1.3	124	395	2200	.04		378	6.6	42	476	2.9	43			2823
DEC	73	1.0	1.1		183	2400			224	5.5	37	319					1893
TOTAL	813	15.3	-	-	-	-	-	-	3102	-	-	2267	-	-	-	-	13954
AVG.	0.9 cu ft/m ³ gal	1.3	1.7	93	161	2400	.15		259	7.4	42	189	4.2	49			1163

**TOWN OF
HUNTSVILLE
W.P.C.P.**



DESIGN DATA

PROJECT	Town of Huntsville	
PROJECT NO.	1-0088-67	
TREATMENT	Conventional Activated Sludge	
DESIGN FLOW	3.0 MIGD	
DESIGN POPULATION		
BOD - Raw Sewage	250 mg/l	
- Removal	90-95%	
SS - Raw Sewage	250 mg/l	
- Removal	90-95%	

PRIMARY TREATMENT

Grit Removal

One (1) new aerated grit tank 13'x10' x8'-7" liquid depth @ DWF.

Comminutor

One (1) new 16-inch continuously operating 3 H.P. comminutor complete with bar screen in by-pass channel.

Primary Clarifiers

Two (2) new rectangular tanks each 53'x 16'x12' S.W.D. rated 590 IGPD/sq. ft. @ D.W.F. with
 - sludge collection by chain flight longitudinal and cross collectors
 - scum collection by collector flights at surface
 - Two (2) plunger type raw sludge pumps each rated @ 16 IGPM @ 80' TDH with 10. H.P., 1200 RPM motors.

SECONDARY TREATMENT

Aeration Tanks

Two (2) new aeration tanks ea. 26' square x 14' deep with 15 HP mechanical aerator. Detention time is 4.4 hours @ 0.63 MIGD (DWF). Two (2) existing aeration tanks each 24' square x 12' deep with two (2) new 7½ HP mechanical aerators. Detention time is 6.3 hours @ 0.37 MIGD (DWF).

Final Clarifier Tanks

Two (2) new rectangular tanks each 66'x18'x12' SWD, rated 800 IGPD/ft² @ 1.89 MIGD (peak flow).
 - sludge collection by chain flight longitudinal and cross collectors.
 - scum collection by collector flights at surface.
 - two (2) horizontal variable speed centrifugal sludge pumps, each with a maximum rate of 438 IGPM @ 20.25' TDH and 5 HP, 1200 RPM motor. Two(2) existing rectangular tanks extended and modified to 53'x13'x12' SWD rated 800 IGPD/ft² @ 1.11 MIGD (peak flow)
 - sludge collection by chain flight longitudinal collectors and sludge hoppers.

Chlorine Contact Chamber

Two (2) new C.C.C.'s ea. 29'x12'x9' SWD providing 15 min. detention @ 4.0 MIGD two (2) gas chlorinators with a capacity of 400 lb/day for chlorination of plant effluent, influent and return activated sludge.

SLUDGE HANDLING

Digestion Facilities

One (1) new primary digester 30' dia. x 22' SWD, rated 800 IGPD with fixed fiberglass cover capacity 16,700 cu. ft. (104,208 I.G.) Also new gas mixing system. One (1) existing digester 30' dia. x 20' SWD capacity 15,000 cu. ft. (93,500 gal.) This now becomes the secondary digester in a two stage system.

Outfall Sewer

115' of 22 inch dia. discharging into the Muskoka River.

PUMPING STATIONS

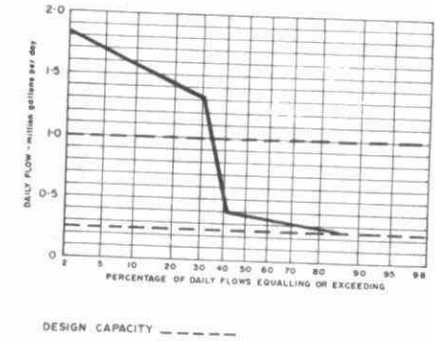
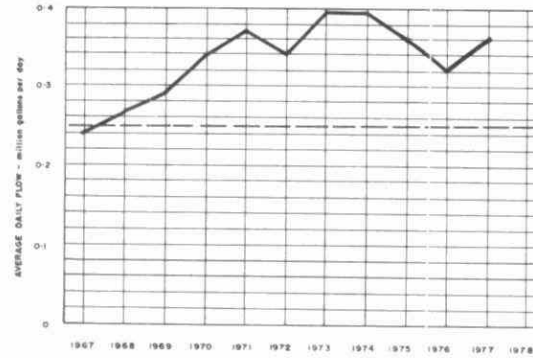
- #1 Type: Chicago Pump
Size: Two 290 GPM each.
- #2 Type: Chicago Pump
Size: Two 80 GPM each.
- #3 Type: Chicago Pump
Size: Two 80 GPM each.

PLANT PERFORMANCE

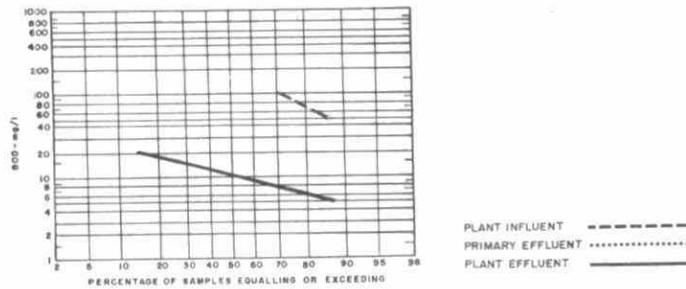
HUNTSVILLE WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l P	EFFLUENT mg/l P
						%	10 ³ pounds			%	10 ³ pounds		
JAN	7.4	.24	.28										
FEB	6.2	.22	.35	125	8	94	7.3	166	14	92	9.4	21.2	1.4
MAR	13.7	.44	.68										
APR	11.7	.39	.59										
MAY	9.1	.29	.37	100	15	85	7.7	145	34	77	10.1	10.0	1.0
JUNE	8.5	.28	.36	60	8	87	4.4	129	43	67	7.3	21.2	1.0
JULY	10.5	.34	.46	110	22	80	9.2	128	19	85	11.4	13.0	1.5
AUG	20.3	.66	1.30										
SEPT	10.2	.34	1.70					39	18	54	2.1		
OCT	11.1	.36	1.70	130	6	95	13.8	105	7	93	10.9	7.5	1.5
NOV	10.7	.36	1.90					91	6	93	9.0	19.2	0.7
DEC	10.2	.33	1.90		11			92	12	87	8.1	19.5	0.5
TOTAL	129.6	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	10.8	.36	1.90	105	12	89	10.0	98	9	91	9.6	17.9	0.9
No. of Samples	-	-	-	5	6	-	-	77	82	-	-	30	54

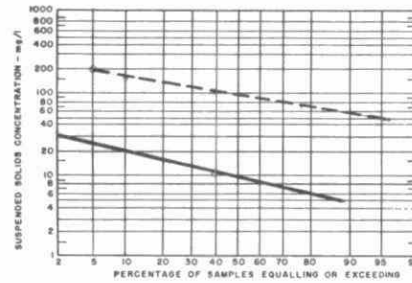
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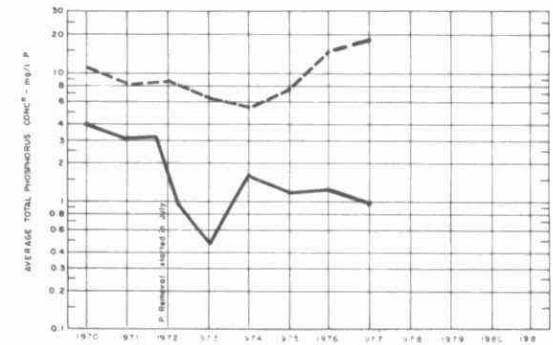
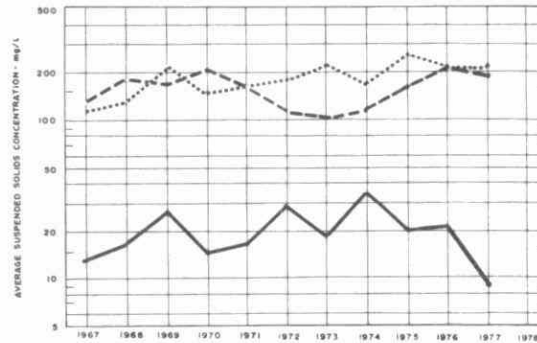
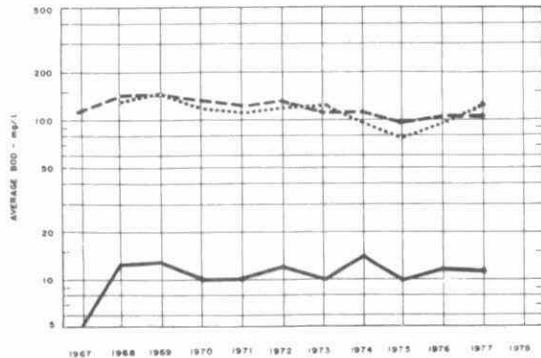
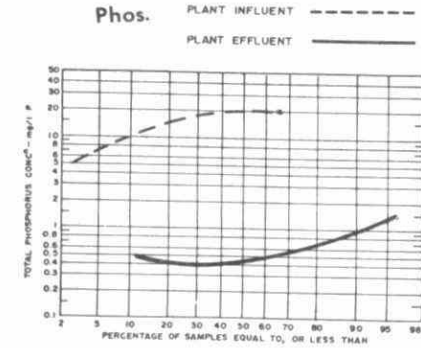
BOD₅



Susp. Solids



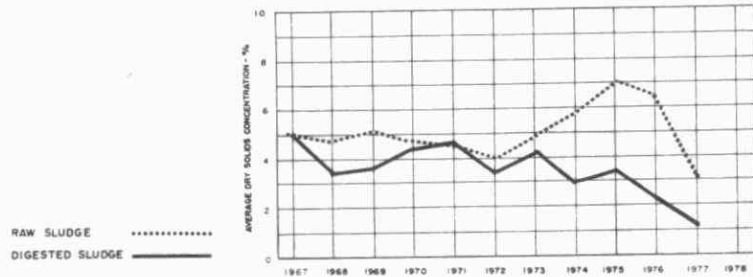
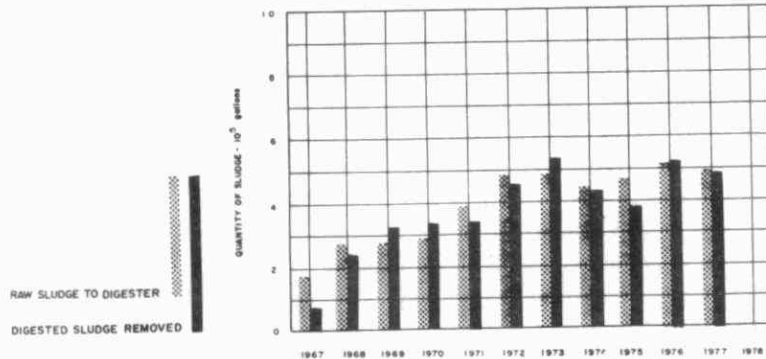
Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		CL ₂ USED pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT T.S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %		
JAN		273	3.7						50			54				128
FEB	10	277	4.5	150	205	1100	.32		57			61	1.8		.9	361
MAR		638	4.7						21			35				210
APR	24	836	7.1						3			3				63
MAY	30	747	8.2	130	320	1500	.29		42	3.6		27				157
JUNE	14	460	5.4	160	511	1000	.52		50	3.2		67	1.5		.4	399
JULY	61	541	5.2	150	128	360	1.63		59	2.5			.2		.3	
AUG	47	976	4.8						31			61				363
SEPT	12	537	5.3						64			63				371
OCT		600	5.6	45	56	2100	.09		42			18				109
NOV	48	560	5.2		74	2400			39			53	.8			315
DEC		546	5.4			2300			40			45	1.7			266
TOTAL	246	6991	-	-	-	-	-	-	498	-	-	487	-	-	-	2742
AVG.	1.9 <small>cu ft/min per</small>	583	5.4	127	216	1500	.57		42	3.1		41	1.2		.5	229

Digestion



DESIGN DATA

SOUTH PEEL - LAKEVIEW WPCP

TYPE: CONVENTIONAL ACTIVATED SLUDGE

DESIGN FLOW 37.5 MIGD
DESIGN BOD 300 mg/l
DESIGN S.S. 350 mg/l

PRETREATMENT

- Grit Removal
Aerated tanks
Two 106' x 21' x 13.5'
Total vol. 375,000 gal.
Air supply 4.2 - 6 cfm
- Screening
Mechanical front cleaned screens
Two with 3/4' openings in 7' channels

PRIMARY SEDIMENTATION

- Two 87' x 32' x 12'
- Two 87' x 48' x 12'
- Two 214' x 65' x 12'
- Total vol. 3.12 MG
- Detention Time: 2 hr.
- Overflow rate 900 gpd/ft²

SECONDARY TREATMENT

- Aeration Tanks
Diffused air, SPARGERS
Two 3-pass tanks, 144' x 63' x 14.3'
Two 3-pass tanks, 144' x 60' x 15'
Two 4-pass tanks, 216' x 80' x 14'
Total volume: 9.28 MG
Detention time: 5.9 hr.
Air supply: Three BROWN-BOVERI
each 30,000 cfm

Secondary Sedimentation

- Four 87' x 32' x 12'
- Two 104' x 48' x 12'
- Four 140' x 79' x 12'
- Total volume: 4.93 MG
- Detention time: 3.2 hr.
- Overflow rate: 575 gpd/ft²

CHLORINATION

- One F & P 2000 lb/day cap.
- Three W & T 2000 lb/day cap.
- Supply: rail tank cars.

SLUDGE HANDLING

- Primary Digesters
Fixed roof, mixed by gas recirculation
Three 100' dia. x 30.5' swd
Total volume 7,88000 ft³ or 4.9 MG
- Secondary Digesters
Fixed concrete roof
One 100' dia x 30.5' swd
Volume: 262,000 ft³ or 1.64 MG
- Holding Digesters
Fixed concrete roof
Two 80' dia x 25.5' swd
Total volume: 256,000 ft³ or 1.60 MG

(NOTE: Two tanks 65' dia x 25' swd not in use)

PLANT III

TYPE: CONVENTIONAL ACTIVATED SLUDGE

DESIGN FLOW 12.5 MIGD
DESIGN BOD 300 mg/l
DESIGN S.S. 350 mg/l

PRETREATMENT

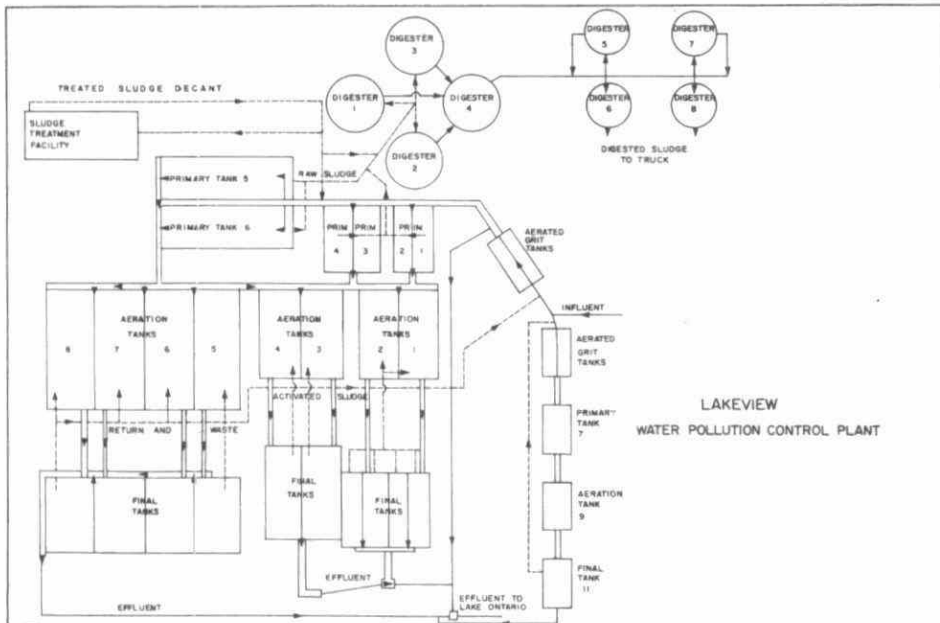
- Grit Removal
Aerated Tanks
Two 90' x 21' x 13.0'
Detention 8.68 min.
Air Supply 4 - 6 cfm.
- Screening
Mechanical front cleaned screens
Two with 3/4" openings in 7' channels.

PRIMARY SEDIMENTATION

- One 214' x 65' x 12'
- Total Volume: 1.04 MG
- Detention time: 2 hr.
- Overflow rate: 900 gpd/ft²

SECONDARY TREATMENT

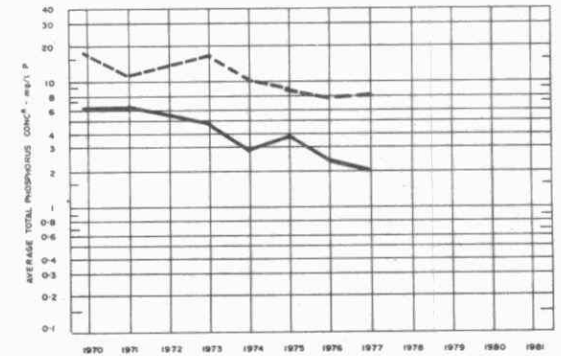
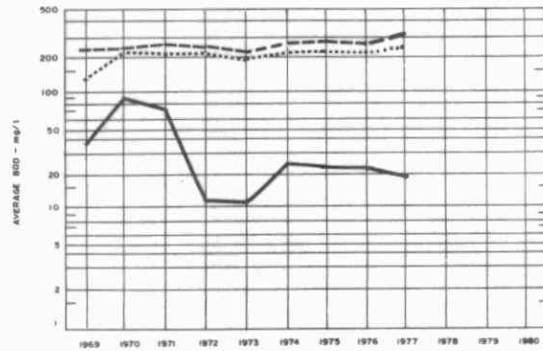
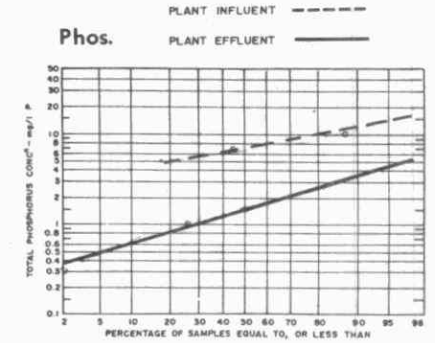
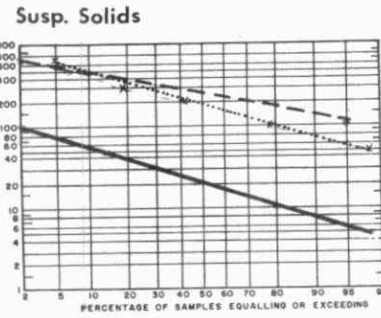
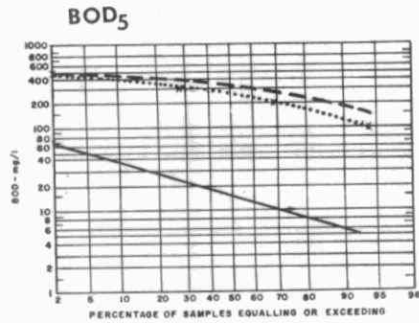
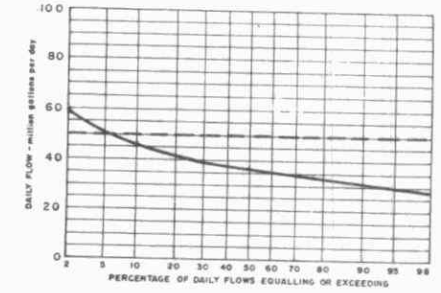
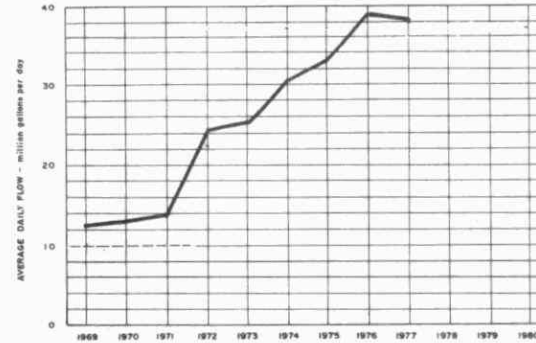
- Aeration Tanks
Diffused air; SPARJERS
One 4-pass tank, 432' x 20' x 15'
Total Volume: 3.23 MG
Detention time: 4.67 hr.
Air supply: Two Brown-Boveri
each 33,000 cfm.
- Secondary Sedimentation
One 12.16' x 78.75' x 260'
Total volume: 1.56 MG
Detention time: 3 hr.
Overflow rate: 610 gpd/ft²



PLANT PERFORMANCE

SOUTH PEEL - LAKEVIEW WPCP

MONTH	FLOWS				BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW 1+2+3 million gallons	TOTAL FLOW PLANT 1&2 million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION % 10 ⁶ pounds		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION % 10 ⁶ pounds		INFLUENT mg/l P	EFFLUENT mg/l P
JAN	1036	1036	33	37	310	15	95	3.1	295	18	94	2.9	7.8	3.3
FEB	1009	964	34	59	336	22	93	3.0	336	28	92	3.0	6.4	2.7
MAR	1323	1123	36	65	303	19	94	3.2	243	30	88	2.4	8.2	2.5
APR	1199	941	31	47	315	25	92	2.7	265	23	91	2.3	6.1	2.2
MAY	1077	788	25	35	410	24	94	3.1	316	34	89	2.2	9.8	2.1
JUNE	1083	781	26	32	367	15	96	2.7	312	17	96	2.3	8.3	1.3
JULY	1073	777	25	35	235	11	95	1.7	187	14	93	1.3	12.7	2.2
AUG	1148	879	28	34	241	9	96	2.0	210	15	93	1.7	6.5	1.3
SEPT	1224	854	28	47	287	30	90	2.2	280	43	85	2.0	7.6	1.9
OCT	1256	1093	35	58	286	21	93	2.9	326	35	89	3.2	10.1	2.2
NOV	1217	1063	35	46	300	16	95	3.0	323	29	91	3.1	7.7	1.0
DEC	1368	1156	37	61	270	18	93	2.9	351	35	90	3.6	7.7	0.7
TOTAL	14013	11455	-	-	-	-	-	32.8	-	-	-	29.8	-	-
AVG.	38		31	MAXIMUM 65	305	19	94	2.7	287	27	91	2.5	8.0	1.9
No. of Samples	-	-	-	-	316	333	-	-	313	323	-	-	97	129



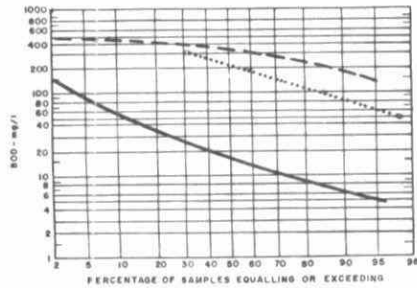
PLANT PERFORMANCE
SEWAGE Plant No. 3

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW PLANT 3 million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l	EFFLUENT mg/l	REDUCTION		INFLUENT mg/l P	EFFLUENT mg/l P
						%	10 ³ pounds			%	10 ³ pounds		
JAN				336	43	87	132	336	36	89	135	6.4	1.9
FEB	45	5.6	7.5	303	59	81	483	243	37	85	411	5.2	4.8
MAR	200	6.4	15.0	315	42	87	703	265	60	77	525	6.1	2.7
APR	258	8.6	16.6	410	45	89	1055	316	48	85	775	9.8	1.8
MAY	289	9.3	15.2	367	26	93	1030	312	40	87	821	8.3	1.5
JUNE	302	10.1	12.3	235	10	96	666	187	14	93	512	12.7	4.3
JULY	296	9.6	12.3	241	12	95	615	210	24	89	500	6.5	1.6
AUG	269	8.7	13.3	287	31	89	947	280	31	89	921	7.6	1.5
SEPT	370	12.3	17.2	286	13	95	445	326	20	94	499	10.1	0.9
OCT	163	5.3	13.9	300	23	92	428	323	50	85	420	7.7	1.5
NOV	154	5.1	8.9	270	16	94	537	351	20	94	700	7.7	0.9
DEC	212	6.8	11.7	-	-	-	-	-	-	-	-	-	-
TOTAL	2558	-	-	-	-	-	7111	-	-	-	6446	-	-
AVG.		7.8	17.2	305	27	91	593	286	34	88	537	8.0	1.8
No. of Samples	-	-	-	310	198	-	-	292	192	-	-	93	64

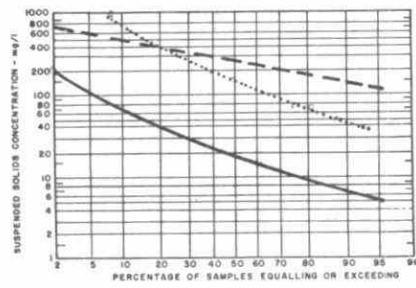
TREATMENT DATA (Plant 3)

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		Cl ₂ USED 10 ³ pounds	AVG DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M	AIR 1000 ft ³ lb BOD	RAW SLUDGE		DIGESTED SLUDGE		SUPER-NATANT		AMOUNT HAULED	
									QUANTITY 10 gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 gallons	TOTAL SOLIDS %	VOL SOLIDS %	T.S. %	cubic yards
JAN																
FEB						4300										
MAR	15			451	530	4700	.19									
APR	20			261	392	3900	.18									
MAY	230			283	236	3800	.21									
JUNE	50			293	193	2700	.34									
JULY	20			140	113	2800	.15									
AUG	50			93	95	2800	.09									
SEPT	100			256	93	2700	.36									
OCT	50					6200	.08									
NOV				347	701	6500	.08									
DEC				231	318	4600	.11									
TOTAL	445															
AVG.	.2 cu ft/mil gal			262	297	4100	.18									

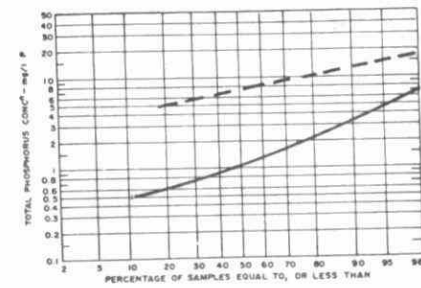
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SUS SOL



PHOS



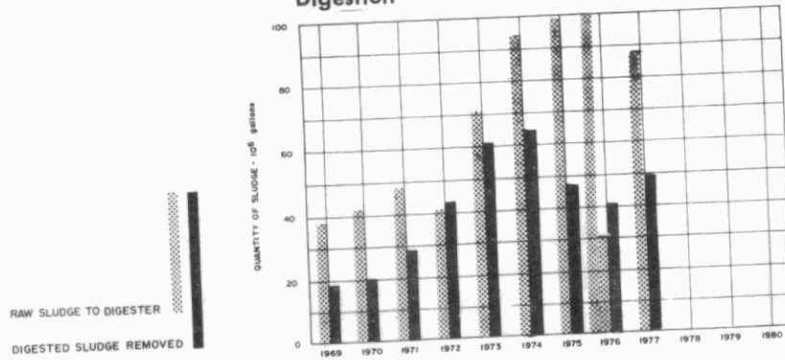
TREATMENT DATA (Plant 1 & 2)

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION PLANTS 1 & 2		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		Cl ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT T.S. %	AMOUNT HAULED 10 ³ cubic yards
									QUANTITY 10 ⁶ gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 ⁶ gallons	TOTAL SOLIDS %	VOL SOLIDS %		
JAN	1740	37	3.6	321	527	2200	.53		12.3	3.4	76	3.0	2.5	60		18.0
FEB	1000	39	3.9	322	659	2800	.43		12.8	3.4	75	1.9	3.2	59		11.5
MAR	2970	46	3.4	241	229	2600	.36		11.4	4.0	72	3.1	2.9	57		18.7
APR	1450	35	2.9	269	268	2700	.34		6.8	3.8	71	3.2	3.0	54		19.2
MAY	1950	52	4.8	330	313	2800	.32		8.5	3.1	73	6.8	3.3	55	2.0	40.2
JUNE	1200	46	4.2	318	187	2800	.32		7.6	2.8	71	7.5	2.1	56	1.6	45.1
JULY	970	58	5.4	157	120	2500	.17		4.9	3.2	63	4.9	2.3	55	1.8	29.3
AUG	1100	49	4.3	170	119	2600	.20		4.2	4.0	63	1.9	3.5	50	2.1	11.4
SEPT	2025	45	3.7	246	168	2500	.30		4.7	3.2	47	3.5	3.1	47	1.1	20.9
OCT	1600	56	4.4	216	192	2600	.32		5.3	3.7	68	3.2	4.5	51	1.5	19.1
NOV	1375	54	4.4	239	220	3200	.28		3.7	3.5	67	5.5	3.5	58	1.1	32.9
DEC	1100	55	4.0	216	201	2600	.33		5.1	3.8	70	4.4	3.1	56		26.5
TOTAL	18480	572	-	-	-	-	-	-	87.3	-	-	48.9	-	-	-	292.8
AVG.	1.6 cu ft/mi gal		4.1	254	267	2700	.33		7.3	3.5	68	4.1	3.1	55	1.6	24.4

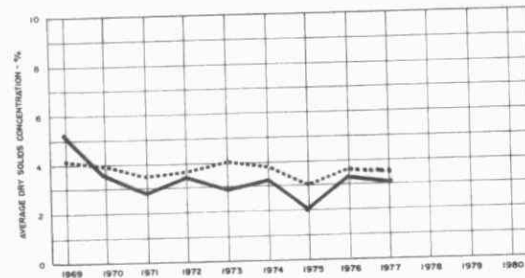
TREATMENT DATA

MONTH	VACUUM FILTER WITH THERMAL CONDITIONING UNIT									
	BLENDED SLUDGE		DECANT SUPERNATANT		SLUDGE TO FILTER		VACUUM FILTER		CAKE	
	VOLUME IN 10 ⁶ gallons	T.S. %	V.S. %	B.O.D. mg/l	S.S. mg/l	BOD mg/l	S.S. mg/l	AVG. YIELD lb/ft ² /hr	T.S. %	HAULED cubic yards
JAN		3.5	72	7100	4300	13000	18000	1.6	40	
FEB		2.9	68	4500	4300	9100	9000	2.1	39	
MAR	3.71	3.7	63	5200	6200	8100	5400	2.0	39	
APR	4.61	3.0	64	6300	5800	8100	7500	2.2	40	
MAY	4.13	2.1	67	5300	3000	11000	14000	2.5	40	
JUNE	4.80	1.9	65	3400	1000	6300	3400	2.8	42	
JULY	4.13	1.6	60	2900	2600	6100	10000	2.4	40	
AUG	4.90	2.4	61	2600	900	4800	4900	3.3	42	
SEPT	6.66	2.0	56	3000	2400	4800	4000	3.8	44	
OCT	4.00	2.8	68	3500	760	4400	2700	4.4	42	
NOV	5.70	2.2	65	3800	1100	4500	3900	3.1	39	
DEC	6.20	2.3	67	3700	1000	7100	7700	2.8	39	
TOTAL	48.84									
AVG.		2.5	65	4300	2800	7300	7500	2.8	41	

Digestion



RAW SLUDGE
DIGESTED SLUDGE ———



REGION 4
Southeastern

DESIGN DATA

PROJECT NO. 1-0004-66
 PROJECT City of Belleville WPCP
 TREATMENT Activated Sludge

DESIGN FLOW 8.0 mgd
 DESIGN POPULATION 52,000
 BOD - Raw Sewage 130 mg/l
 - Removal 88%
 SS - Raw Sewage 175 mg/l
 - Removal 91%

PRIMARY TREATMENT

Grit Removal

Type: Aerated grit tank with grab bucket
 Size: Two 24' x 24' x 12'¹/₂' (52,400 gal)
 Retention: 9.4 minutes
 Air Supply: Two Roots blowers 610 scfm each
 Two Aerzener Rotary 350 scfm each

Screening

Type: Mechanically cleaned
 Size: 2" opening

Comminution

Type: Two Chicago Pump barminutor Model C-36

Primary Sedimentation

Type: Falk
 Size: Four 70' x 36' x 12' (752,000 gal total)
 Retention: 2.3 hours
 Loading: Surface: 795 gal/ft²/day
 Weir: 14,700 gal/ft/day

CHLORINATION

Type: Fischer & Porter
 Size: One 1,000 lb/day
 One 1,500 lb/day

Chlorine Contact Chamber

Size: 54.7' x 60' x 11' (167,000 gal)
 Retention: 30 minutes

Outfall

Approx. 280' of 48" dia. concrete pipe and 1179' of 36" dia. concrete pipe to Bay of Quinte

SLUDGE HANDLING

Digestion System

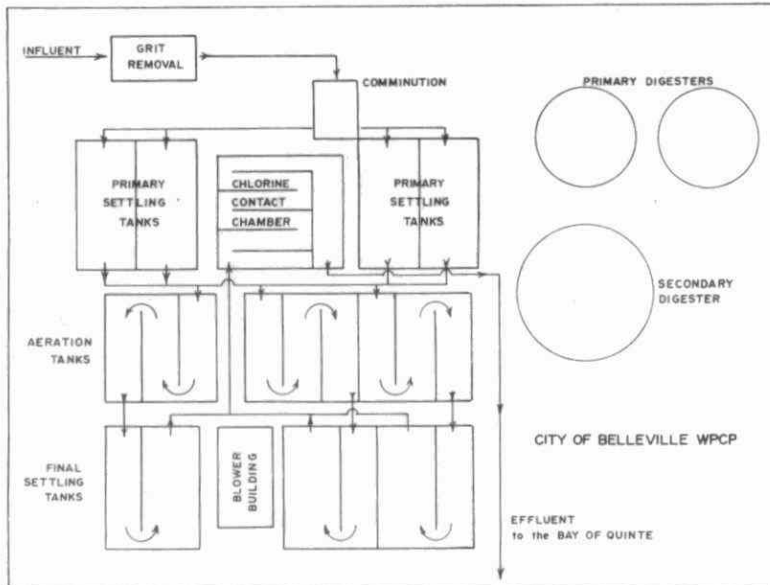
Type: Two stage

Primary:

Type: Gas mixed
 Size: Two 45' dia. x 27' swd (79,400 ft³ total)

Secondary:

Type: Non mixed
 Size: One 55' dia. x 27' swd (59,400 ft³ total)



SECONDARY TREATMENT

Aeration Tanks

Type: Three, 3-pass
 each pass 60' x 20' x 12' awd
 (Volume 809,000 gal total)

Retention: 2.4 hours

Air Supply

Type: Aerzen Maschinen fabric
 Size: Three 2280 scfm @ 7 psi

Diffusers

Type: Sparjers - 5/16"
 Spacing: 4 inch centers

Secondary Sedimentation

Type: Falk
 Size: Three 83' x 56.5' x 12' (2 pass) (1,070,000 gal total)
 Retention: 3 hours
 Loading: Surface 800 gal/ft²/day
 Weir 13,000 gal/ft/day

PUMPING STATIONS

a) Plant site @ 35' tdh

One Worthington 2500 gpm (electric)
 One Worthington 1666 gpm (electric)
 One Worthington 2500 gpm (electric and diesel)

b) Front Street

One Worthington 2500 gpm (electric @ 55' tdh)
 One Worthington 1666 gpm (electric @ 55' tdh)
 One Worthington 3332 gpm (diesel and electric @ 55' tdh)
 One Fairbanks Morse 4400 gpm (diesel @ 42' tdh)

c) Dundas Street West

One Worthington 416 gpm (electric @ 29' tdh)
 One Worthington 1300 gpm (diesel @ 40' tdh)

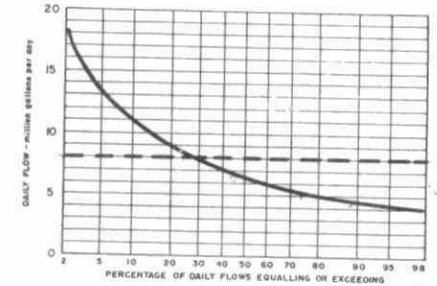
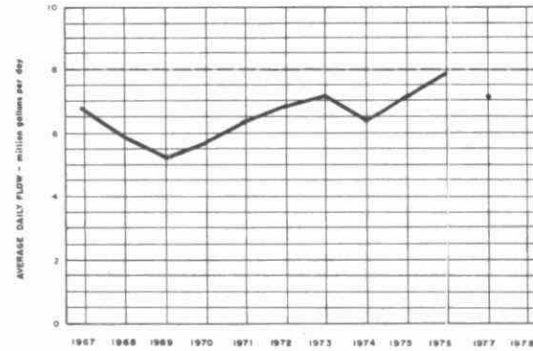
PLANT PERFORMANCE

BELLEVILLE WPCP

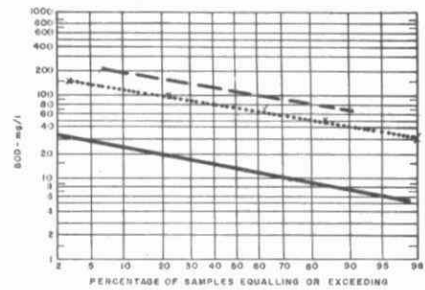
SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ⁶ pounds	mg/l	mg/l	%	10 ⁶ pounds	mg/l P	mg/l P
JAN	154	5.0	8.4	115	12	90	.16	205	15	93	.29	5.4	0.7
FEB	173	6.2	10.6	111	17	85	.16	187	24	86	.25	7.4	0.9
MAR	423	13.6	22.2	83	17	80	.28	153	27	82	.53	4.3	1.0
APR	234	7.8	16.1	102				190				6.9	
MAY	168	5.4	6.9	194	12	94	.31	142	17	88	.21	5.0	0.8
JUNE	139	4.6	7.4	148	14	91	.19	162	14	91	.20	4.5	0.7
JULY	144	4.6	5.8	141	16	89	.18	230	16	93	.31	7.8	0.8
AUG	190	6.1	14.4	97	26	73	.13	183	12	93	.32	3.1	0.4
SEPT	197	6.6	12.7	188	13	93	.34	242	11	95	.46	5.7	0.5
OCT	237	7.6	14.9	156	14	91	.34	196	13	93	.43	9.4	0.8
NOV	242	8.1	15.0	146	9	93	.33	185	14	92	.41	5.6	1.0
DEC	300	9.7	15.3	101	16	84	.25	210	14	93	.59	9.2	1.0
TOTAL	2601	-	-	-	-	-	3.12	-	-	-	4.42	-	-
AVG.	216	7.1	MAXIMUM 22.2	134	14	89	.26	186	16	91	.37	6.0	0.7
No. of Samples	-	-	-	51	48	-	-	54	49	-	-	53	48

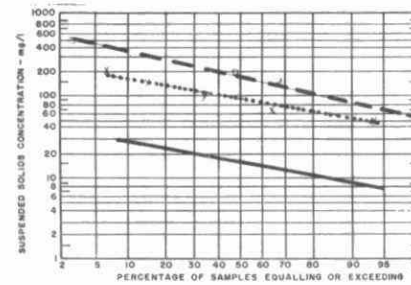
FLOWS



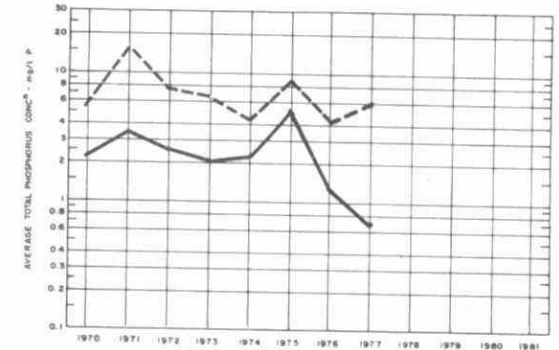
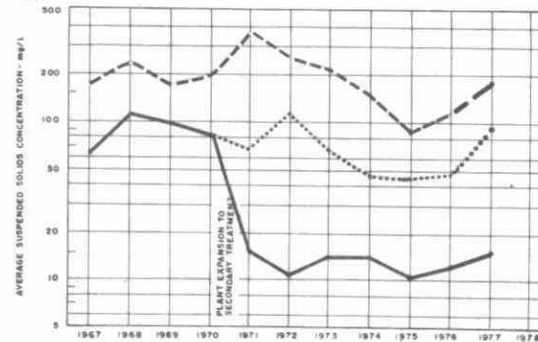
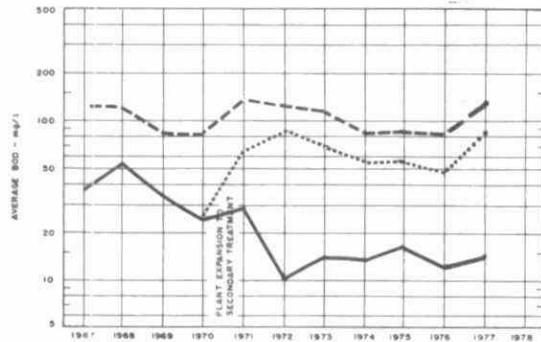
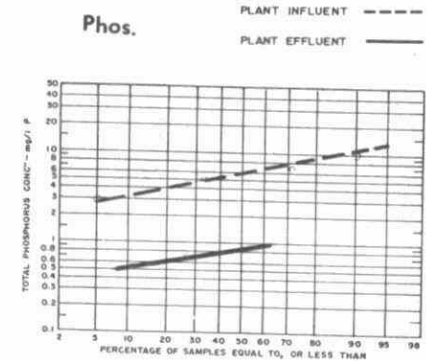
BOD₅



Susp. Solids



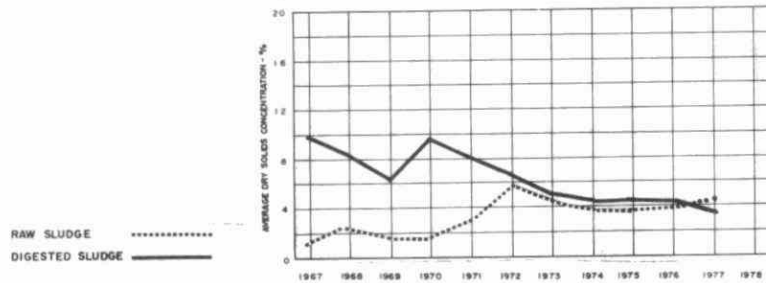
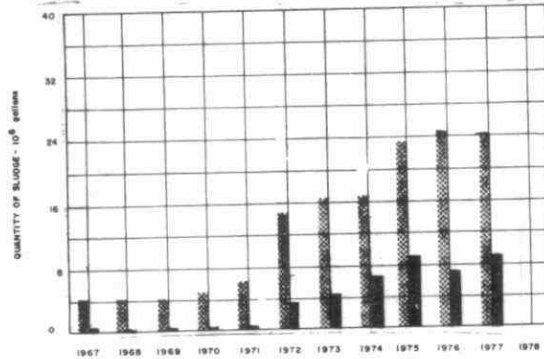
Phos.



TREATMENT DATA

MONTH	GRIT		CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL						
	QUANTITY REMOVED cubic feet	Cl ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 HP lb/BOD	RAW SLUDGE			DIGESTED SLUDGE				AMOUNT HAULED cubic yards
									QUANTITY 10 ⁶ gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 ⁶ gallons	TOTAL SOLIDS %	VOL SOLIDS %	SUPER-NATANT T.S. %	
JAN		3.7	2.4	62	63	2300	.17	3.0	2.0	4.0	71	.70	3.3	62	8.2	3864
FEB		3.3	1.9	53	50	2800	.14	2.8	1.8	4.3	69	.70	3.5	61	3.7	4176
MAR		4.1	1.0	45	50	2100	.36		2.0	4.7	66	.66	2.7	60	2.1	3926
APR		3.4	1.5	72	105	2100			2.0	5.7	70	.65			2.0	3864
MAY		4.0	2.4	77	85	1900	.27		2.0	4.7	73	.87	4.1	56	2.0	5164
JUNE		3.2	2.3	84	62	1600	.30		2.0	4.3	71	.71	3.0	63	2.4	4238
JULY		4.0	2.8	69	91	1900	.21		2.0	4.1	64	1.18	3.2	61	2.2	7022
AUG		4.0	2.1	128	120	1800	.54	1.7	2.0			.88	4.0	57	2.7	5193
SEPT		5.7	2.9	86	82	1500	.45	1.6	2.0	2.9	68	.66	4.2	56	2.3	3926
OCT		6.3	2.7	108	130	1700	.55	.8	2.0			.76	4.0	57		4487
NOV		6.3	2.1	147	204	1900	.74	.5	2.0	5.6	72	.66				3905
DEC		5.8	1.9	75	90	1500	.52	1.0	2.1	4.9	73	.64			.4	3801
TOTAL		53.8	-	-	-	-	-	-	23.9	-	-	9.07	-	-	-	53566
AVG.	ca. 1.7/mil gal	4.4	2.0	82	92	1900	.38	1.6	2.0	4.5	69	.75	3.5	59	2.8	4463

Digestion



DESIGN DATA

PROJECT: Kingston Twp WPCP

PROJECT NO: 2-0284-70

TREATMENT: Conventional Activated Sludge

DESIGN FLOW: 2.42 MIGD

BOD - Raw Sewage - 238 mg/l
- Removal - 92%

PRIMARY TREATMENT

COMMUNICATOR

Type: Two, C-18 barminutors
Capacity: (each) 3.3 MIGD

SEWAGE LIFT PUMPING

Type: Two, Weiman 6-UH
Size: (each) 1000 IGPM @ 35' TDH

Type: One, Arthur-Leitch 8 SEA
Size: 970 IGPM @ 32' TDH

AERATED GRIT TANK

Type: rectangular
Size: 15' x 14' x 10' swd
Volume: 13,100 I.G.
Retention: 7.8 min

PRIMARY TANKS

Type: Two, rectangular
Size: 12' x 46' x 7.6' swd
Volume: (total) 52100 I.G.
Surface Settling Rate: 730 IGPD/ft² @ 0.81 MIGD
Retention: 1.55 hr @ 0.81 MIGD

FINAL SETTLING TANKS

Type: Two, rectangular
Size: 20' x 60' x 11.25' swd
Volume: (total) 168,000 I.G.
Retention: 2.5 hr @ 1.62 MIGD
Surface Settling Rate: 675 IGPD/ft² @ 1.62 MIGD

RAW SLUDGE PUMPS

Type: Two, plunger type
Size: (each) 200 IGPM

Type: One, Chicago Pumps SF-44
Size: 100 usgpm @ 100' TDH

SECONDARY TREATMENT

AERATION TANKS

Type: Two, rectangular
Size: (each) 22.5' x 61.6' x 15' swd
Volume: (total) 26,000 I.G.
Retention: 7.7 hr @ 0.81 MIGD
Aerators: Chicago Pump discusers

RETURN SLUDGE PUMPS

Type: Two, square
Size: (each) 41' x 41' x 15'
Volume: (total) 312,000 I.G.
Retention: 4.6 hr @ 1.62 MIGD
Aerators: 1 mechanical 40 HP per tank

RETURN SLUDGE PUMPS

Type: Two, Crane 6 x 6 SPL horizontal
Size: each 565 igpm @ 30' TDH

Type: Two, Weiman UH-B horizontal
Size: (each) 350 usgpm @ 25' TDH

FINAL SETTLING TANKS

Type: Two, rectangular
Size: (each) 12' x 56' x 9.75' swd
Volume: (total) 81,700 I.G.
Retention: 2.4 hr @ 0.81 MIGD
Surface Settling Rate:
- 600 IGPD/ft² @ 0.81 MIGD

Type: Two, rectangular
Size: (each) 20' x 67.5' x 12' swd
Volume: (total) 202,000 I.G.
Retention: 3.0 hr @ 1.62 MIGD
Surface Settling Rate:
- 600 IGPD/ft² @ 1.62 MIGD

SLUDGE DIGESTION

Type: Two-stage anaerobic

PRIMARY DIGESTER

Type: One, circular
Size: 55' dia x 20' swd
Volume: 54,500 ft³

SECONDARY DIGESTER

Type: One, circular
Size: 55' dia x 20' swd
Volume: 54,500 ft³

SLUDGE DRYING BEDS

Type: four, concrete-walled rectangular
Size: (each) 20' x 80'
Area: (total) 6400 ft²

CHLORINATION

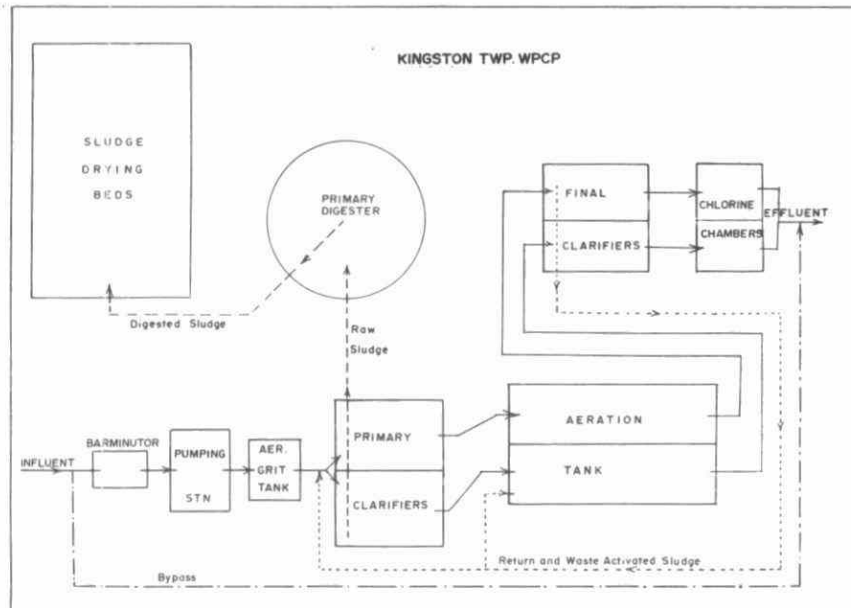
CHLORINE CONTACT TANKS

Type: One, rectangular
Size: 9' x 27.7' x 7' swd
Volume: 10,900 I.G.
Retention: 20 min @ 0.81 MIGD

Type: One, rectangular
Size: 13.5' x 41' x 10' swd
Volume: 34,600 I.G.
Retention: 31 min @ 1.62 MIGD

CHLORINATOR

Type: Wallace and Tiernan A-731
Capacity: (max) 400 lb/day

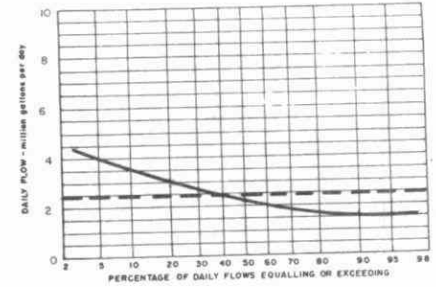
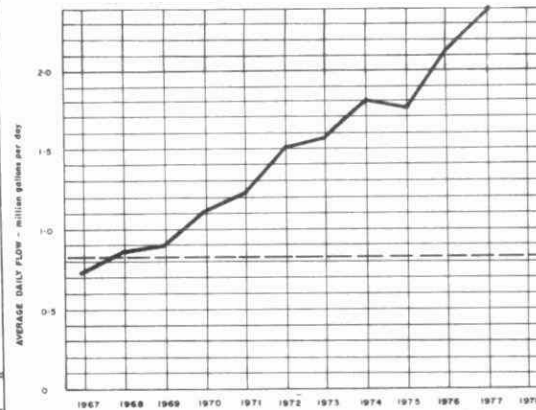


PLANT PERFORMANCE SEWAGE

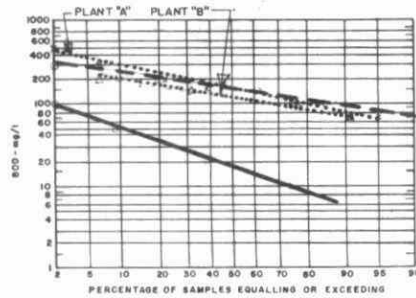
KINGSTON TWP. WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	53	1.7	1.8	166	58	65	57	113	39	65	39	7.6	5.3
FEB	60	2.1	3.6	164	14	91	89	118	35	70	50	7.4	3.9
MAR	107	3.5	4.9	78	30	62	52	88	11	88	83	3.4	1.9
APR	69	2.3	3.6	171	11	94	110	113	23	80	62	5.6	2.1
MAY	63	2.0	2.5	168	17	90	95	147	14	90	84	6.3	2.6
JUNE	59	1.9	2.3	214	22	90	109	198	10	95	107	6.9	1.4
JULY	55	1.8	2.2	181	12	93	94	192	12	94	100	6.8	1.7
AUG	77	2.5	6.2	135	16	88	92	155	13	92	110	4.8	1.5
SEPT	77	2.6	4.7	180	13	93	130	145	9	94	106	4.1	1.2
OCT	86	2.8	4.5	158	14	91	123	118	12	90	91	5.8	0.8
NOV	88	2.9	2.7	117	16	86	89	168	12	93	37	5.0	0.7
DEC	91	2.9	5.6	145	34	77	101	191	18	91	158	6.2	1.1
TOTAL	885	-	-	-	-	-	1212	-	-	-	1124	-	-
AVG.	74	2.4	6.2	157	20	87	101	143	16	89	94	5.6	1.7
No. of Samples	-	-	-	59	114	-	-	71	136	-	-	82	162

PROCESS DATA FLOWS

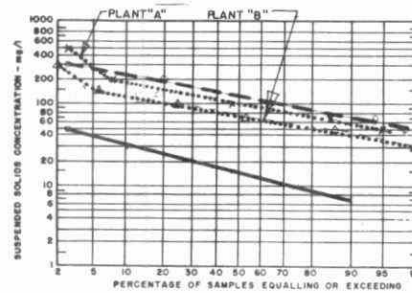


BOD₅

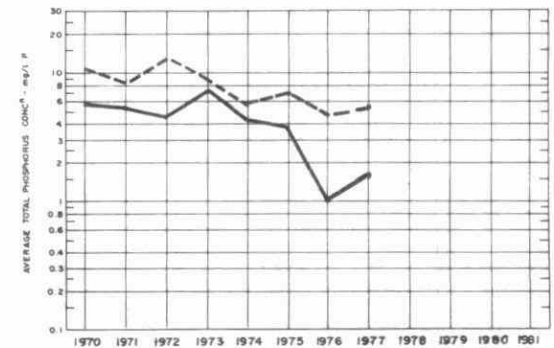
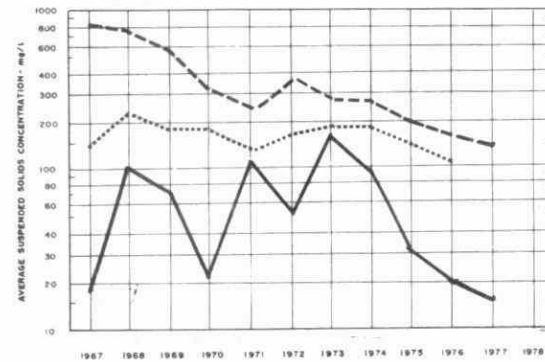
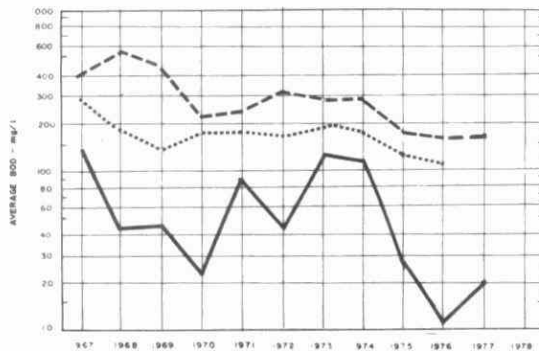
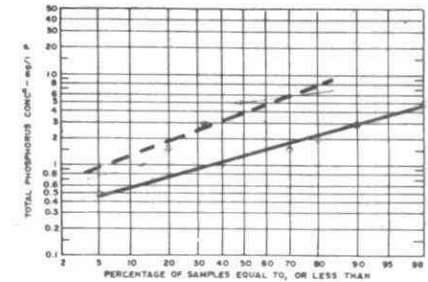


PLANT INFLUENT -----
PRIMARY EFFLUENT
PLANT EFFLUENT —————

Susp. Solids



Phos.

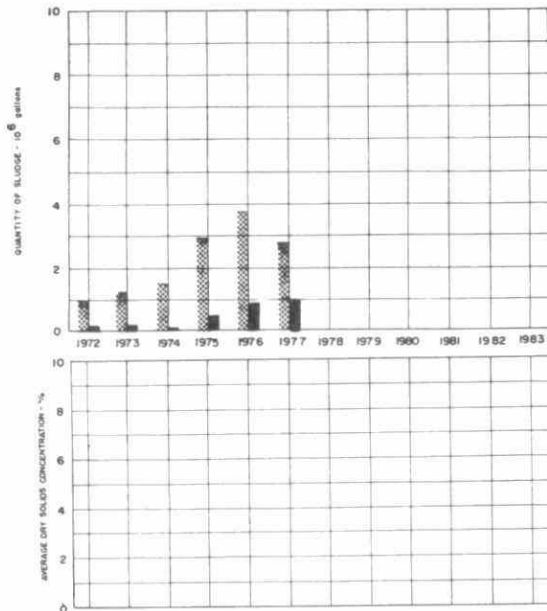


TREATMENT DATA

MONTH	NO.1 PLANT (old plant) A								NO.2 PLANT (new plant) B							
	AVG DAILY FLOW mil gal	PRIM EFF.		SEC EFF.		AERATION			AVG DAILY FLOW mil gal	PRIM EFF.		SEC EFF.		AERATION		
		BOD mg/l	S S mg/l	BOD mg/l	S S mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD		BOD mg/l	S S mg/l	BOD mg/l	S S mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD
JAN	.59	311	563	52	41	2300	.31	1.4	1.14	143	64	53	33	2800	.17	
FEB	.74	173	122	12	36	2800	.18	2.0	1.39	98	44	25	15	4400	.09	
MAR	1.23	73	61	38	28	2500	.14		2.24	73	58	20	21	3400	.14	
APR	.81	132	89	13	14	2200	.19		1.49	127	62	9	33	3000	.19	
MAY	.68	122	71	22	9	2600	.12	3.3	1.36	132	64	17	22	2800	.21	
JUNE	.65	126	136	23	10	2600	.12	3.0	1.25	133	84	21	12	3400	.10	
JULY	.60	158	118	11	12	2500	.15		1.19	146	111	13	11	2700	.19	
AUG	.79	165	124	15	9	2400	.21		1.71	113	99	17	11	2200	.26	
SEPT	.83	153	104	14	8	2800	.18	1.8	1.72	147	112	12	11	2400	.31	
OCT	.92	133	100	10	10	2500	.19	2.1	1.86	83	70	19	15	2500	.18	
NOV	.98	185	232	15	11	3000	.23	1.3	1.94	123	100	16	7	2600	.27	
DEC	.87	169	164	29	18	2500	.23	2.0	2.06	130	77	32	18	2400	.33	
TOTAL																
AVG	.81	161	159	20	16	2600	.19	2.1	1.61	117	81	19	17	2900	.20	

DIGESTION

RAW SLUDGE TO DIGESTER
DIGESTED SLUDGE REMOVED



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		CL ₂ USED 10 ³ pounds	AVG DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD	RAW SLUDGE QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL SOLIDS %	DIGESTED SLUDGE QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL SOLIDS %	SUPER-NATANT T.S. %	AMOUNT HAULED cubic yards
JAN		1.2	2.2						306	3.2	75	73	6.2	53	.3	432
FEB		0.8	1.3						276	3.0	70	73	5.0	58	.8	432
MAR		1.3	1.2						298	3.0	71	90	5.0	59	1.2	540
APR		N/A							293	3.0	72	79	5.3	58	.1	468
MAY		1.7	2.7						208	4.0	71	90	5.0	58	.4	534
JUNE		1.6	2.9						158	3.4	69	91	5.6	59	.2	468
JULY		1.6	2.9						168	4.0	68	73	5.7	59	.1	432
AUG	25	1.6	2.0						190	3.5	62	91	5.3	55	.4	540
SEPT		1.4	1.8						195	4.0	65	73	4.9	54	.3	432
OCT		1.1	1.3						238	3.9	64	73	5.3	52	.5	432
NOV		1.6	2.9						162	4.0	68	73	5.7	59	.1	432
DEC	25	1.6	2.0						190	3.5	62	91	5.3	55	.4	540
TOTAL	50	15.5	-	-	-	-	-	-	2682	-	-	970	-	-	-	5682
AVG.	0.05 cu. ft/m ³ gal	1.4	2.0						224	3.5	68	81	5.4	57	.4	474

*Does not reflect total haulage. Digester contents hauled by others.

DESIGN DATA

PROJECT Sidney Twp. WPCP
 PROJECT NO. 2-0121-62
 TREATMENT Activated Sludge
 DESIGN FLOW 0.12 mgd
 DESIGN POPULATION 1,500
 BOD - Raw Sewage 220 mg/l
 - Removal 90%
 SS - Raw Sewage 250 mg/l
 - Removal 90%

PRIMARY TREATMENT

Grit Removal

Type: Channels, manually cleaned
 Size: Two 9' 3" x 9" x 6" swd
 Flow Velocity: 0.6 fps
 Retention: 16.6 sec

Comminution

- One Chicago Pump, Model 10A

Screening

One 1 1/2" c-c on comminutor bypass
 One 1 1/2" c-c on plant bypass

Primary Sedimentation

Size: One 16' x 16' x 11' swd
 (9,130 gal)
 Retention: 1.83 hr
 Loading: Surface, 468 gal/ft²/day
 Weir, 3750 gal/ft/day

SECONDARY TREATMENT

Type: Diffused air; three-pass
 Size: One 30' x 20' x 10' swd
 (37,400 gal)
 Retention: 7.5 hr

Diffusers: Ceramic Tubes

Spacing: 9 per pass (2 passes)
 12 per pass (1 pass)

Air Supply

Type: Sutorbilt
 Size: Two 140 scfm @ 6 psi

Secondary Sedimentation

Type: Falk
 Size: One 20' x 12' x 10' swd
 (15,000 gal)
 Retention: 3.0 hr
 Loading: Surface, 500 gal/ft²/day
 Weir, 5000 gal/ft/day

CHLORINATION

Type: Advance
 Size: 50 lb/day

Chlorine Contact Chamber

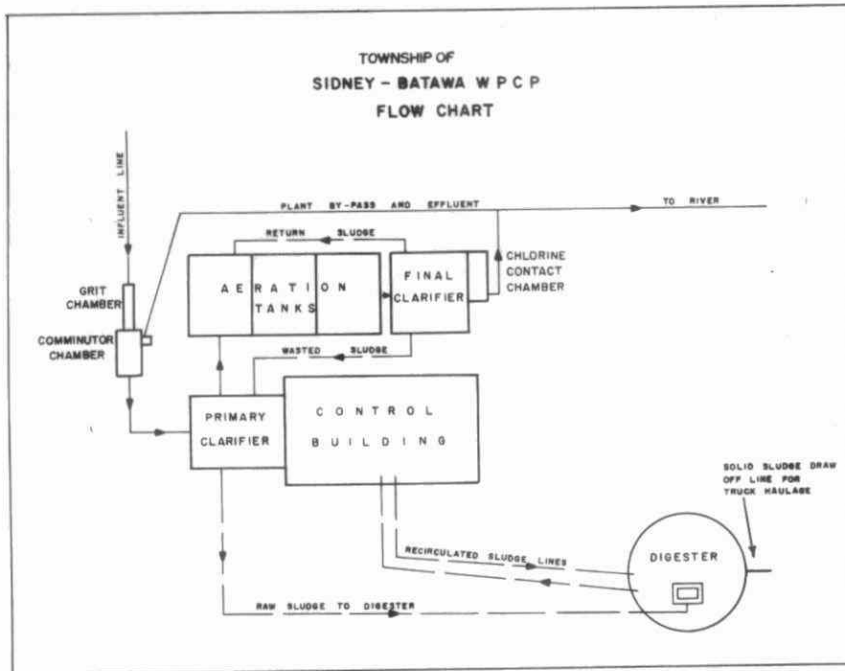
Size: One 10' x 4' x 8' (2,000 gal)
 Retention: 24 min

OUTFALL

- to Trent River

SLUDGE HANDLING

Type: Fixed cover, integral heat
 exchanger coils
 Size: One 20' dia x 17' 4"
 (6,000 cu ft or 37,500 gal)
 Loading: 1.5 lb/cu ft/mo

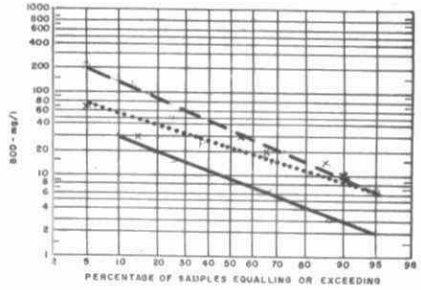
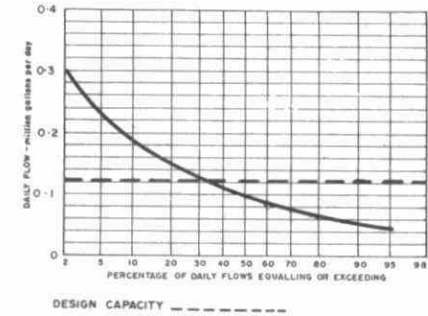
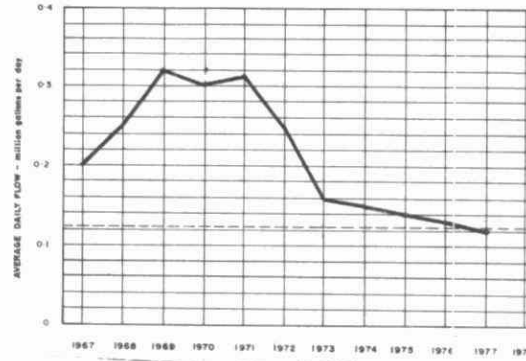


PLANT PERFORMANCE

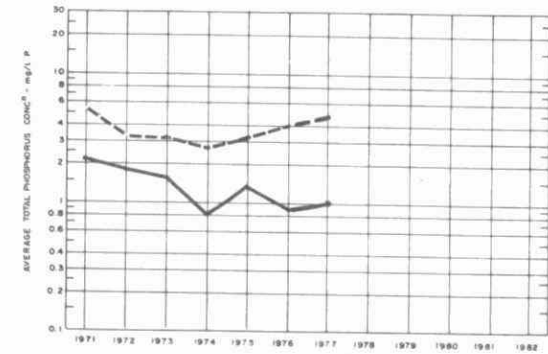
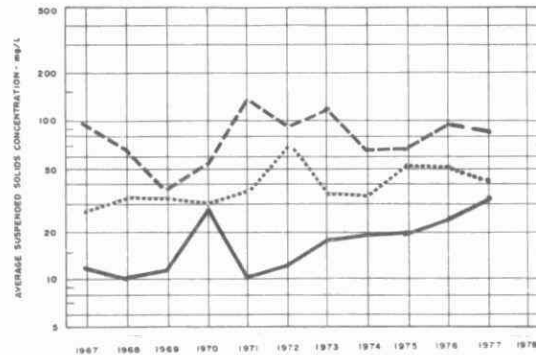
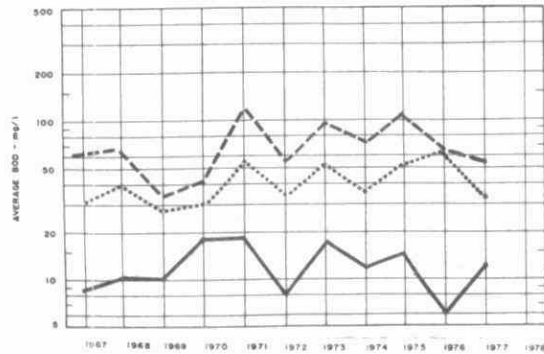
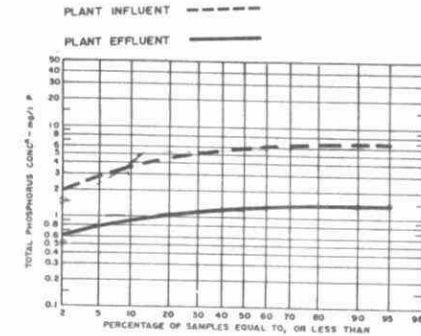
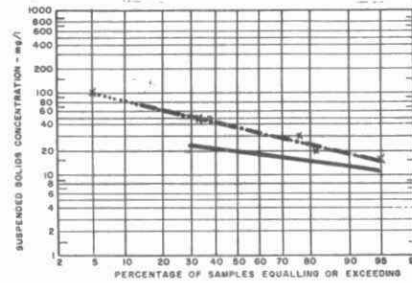
SIDNEY TWP. WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT
	million gallons	mil. gal. day	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P	mg/l P		
JAN	2.08	.07	.09	100	10	90	1.87	55	15	73	.83	4.3	1.0
FEB	2.59	.09	.18	40	8	80	.82	39	18	54	.54	3.7	1.6
MAR	5.97	.19	.24	10	10			18	15	17	.18	1.8	0.4
APR	3.24	.10	.21	27	26	4	.03	20	15	25	.16	1.8	0.9
MAY	2.68	.08	.12	75	4	95	1.90	80	15	81	1.74	1.0	1.2
JUNE	1.93	.06	.10	27	2	93	.48	55	15	73	.77	4.4	1.8
JULY	2.65	.08	.07	28	6	79	.58	35	15	57	.53	3.0	0.8
AUG	2.30	.07	.15	110	15	86	2.19	293	183	38	2.53	7.2	0.9
SEPT	2.67	.08	.45	225	25	89	5.34	430	25	94	10.81	5.1	1.0
OCT	4.72	.15	.35	43	28	35	.71	50	23	54	1.27	4.9	1.0
NOV	5.54	.18	.38	20	8	60	.67	22	10	55	.67	4.8	1.0
DEC	6.05	.19	.39	40	7	83	2.00	45	15	67	1.82	4.9	1.0
TOTAL	42.42	-	-	-	-	-	16.97	-	-	-	31.63	-	-
AVG.	3.54	.12	MAXIMUM .45	53	13	75	1.41	84	33	61	1.80	4.8	1.0
No. of Samples	-	-	-	20	20	-	-	20	20	-	-	142	142

PROCESS DATA FLOWS



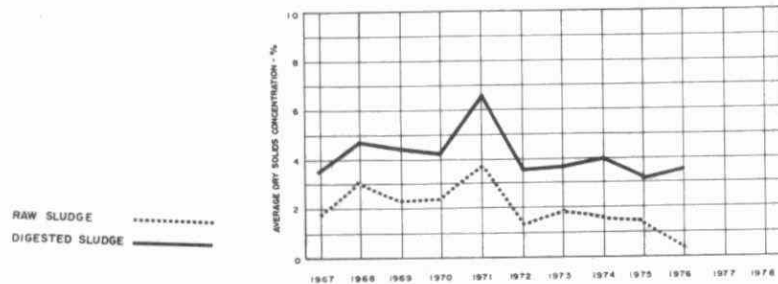
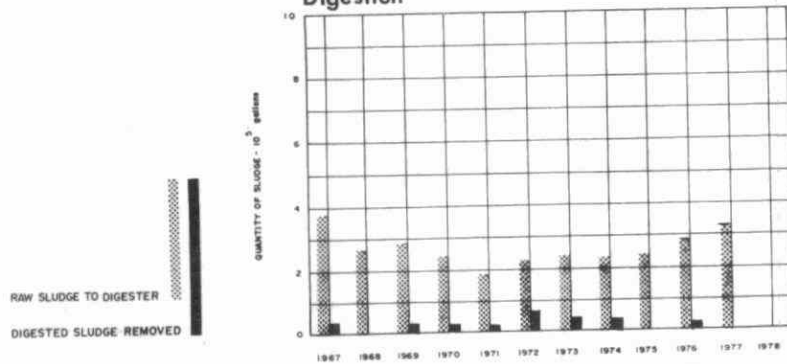
PLANT INFLUENT - - - - -
 PRIMARY EFFLUENT
 PLANT EFFLUENT —————



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		Cl ₂ USED pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 gal to 1000 gal	RAW SLUDGE			DIGESTED SLUDGE			SUPER NATANT T.S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL SOLIDS %		
JAN		232	11.2	55	55	2300			26.7	3.1						
FEB		208	8.0	50	37	1100	.11		21.9							
MAR		230	3.9	9	15	1500	.03		21.3							
APR		198	6.1	34	23	1500	.06		20.7							
MAY		190	7.2	66	35	1500	.10		24.6						.1	
JUNE		180	9.3	49	85	1600	.05		31.5						2.4	
JULY		166	6.3	22	33	1600	.03		30.3						.7	
AUG		227	9.9	39	30	1800	.04		31.2						.1	
SEPT		192	7.2	40	50	1200	.07		31.5						.2	
OCT		239	5.1	23	63	1800	.05		43.5						.9	
NOV		163	2.9	20	53	1800	.05		25.8							
DEC		149	2.5	35	30	1900	.10		21.6							
TOTAL		2374	-	-	-	-	-	-	330.6	-	-	-	-	-	-	-
AVG.	ca. 100 gal	198	5.6	33	42	1600	.06		27.6	3.1					.7	

Digestion



DESIGN DATA

PROJECT Town of Trenton WPCP
PROJECT NO. 1-0210-69
DESIGN FLOW 3.5 MIGD
TREATMENT Conventional Activated Sludge.
DESIGN BOD 250 mg/l
DESIGN SS 300 mg/l

PUMPING STATIONS

Dundas St. 3 pumps operating at 1150 RPM equipped with 150 Hp motors supplying 4.5 MIGD @ 109' TDH. Standby diesel generator 125 kW @ 156.25 kVA

Bay St. 2 pumps operating at 1150 RPM equipped with 60 Hp motors supplying 1.8 MIGD @ 100' TDH. Standby diesel generator 125 kW @ 156.25 kVA.

PRIMARY TREATMENT

Screening - 2,36" barminutor units.

Grit Removal

One aerated grit tank 51'x15.75x11' deep @ DWF.

Primary Clarifiers

- Two rectangular tanks, each 78'x32'x12' SWD @ 700 IGPD/ft².
- Sludge collection by chain flight longitudinal & cross collectors.
- Three plunger-type raw sludge and sludge transfer pumps, each rated at 100 IGPM @ 80' TDH with 7½ Hp motors.
- Scum collector flights at the surface.
- Two torque flow scum pumps rated at 50 IGPM @ 60' TDH with 10 Hp, 1800 RPM motors.

Vortex Chambers

- One V.C. to bypass 2.5 DWF to chlorine contact tank after primary clarifier.
- Two V.C.'s to transfer 2 DWF from aeration tanks to final clarification tanks.

SECONDARY TREATMENT

Aeration Tanks

Two aeration tanks 132'x32'x15' deep with two passes in each tank. 4.15 hours detention @ DWF plus 30% return sludge.

Blower Equipment

- Four 2800 CFM centrifugal units for the aeration tanks and channel aeration 200 Hp 3600 RPM motors.
- Two 130 CFM positive displacement units for the grit tank. 10 Hp 1200 RPM motors.

Final Clarifiers

- Two rectangular tanks 136'x32'x12' SWD @ 800 IGPD/ft². Sludge collection by chain flight longitudinal and cross collectors.
- Two horizontal non-clog return activated sludge pumps each rated @2430 GPM @ 58' TDH driven by 60 Hp 1200 RPM motors.

Chlorine Contact Chamber

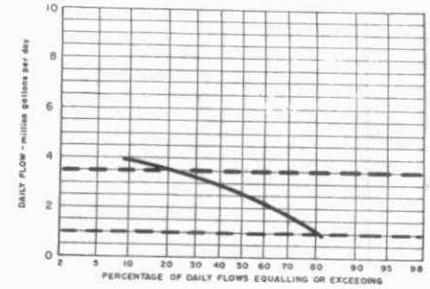
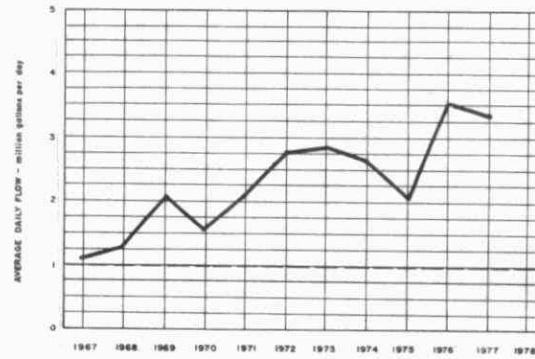
- Two gas chlorinators, 1000 lb/day for influent, effluent and return activated sludge. 87min. detention.
- Scum and sludge collection by travelling bridge on first pass of contact chamber.
- Two sludge and scum torque flow pumps rated at 50 GPM @ 80' TDH driven by 15 Hp 1800 RPM motors.

PLANT PERFORMANCE

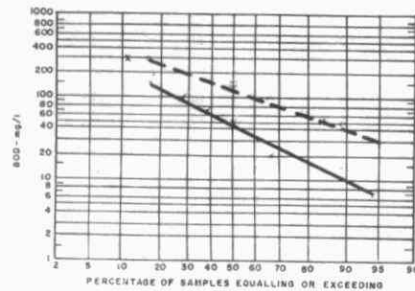
TRENTON WPCP

PROCESS DATA FLOWS

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	82.33	2.65	3.46	350	215	39	111.0	123	150	0		7.7	7.3
FEB	N/A			128	260	0		103	128	0		6.2	5.3
MAR	N/A			300	120	60		130	80	38		5.4	4.4
APR	N/A			150	98	35		70	120	0		5.1	4.8
MAY	N/A			77	58	25		58	73	0		4.0	2.6
JUNE	N/A			128	53	59		125	80	36		5.2	3.6
JULY	11.76	.38	.62	45	27	45	2.1	145	55	62	10.6	6.2	2.6
AUG	34.65	1.15	2.02	90	70	22	6.9	65	50	23	5.2	8.2	5.5
SEPT													
OCT													
NOV													
DEC													
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-
AVG.		1.38	3.46	154	116	25	52.4	106	94	11	16.5	6.1	4.6
No. of Samples	-	-	-	13	13	-	-	13	13	-	-	14	14

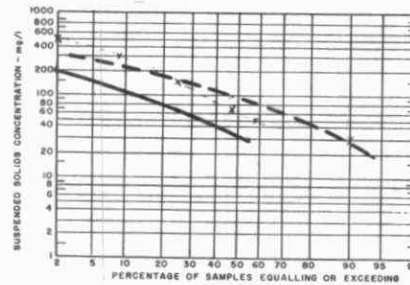


BOD₅

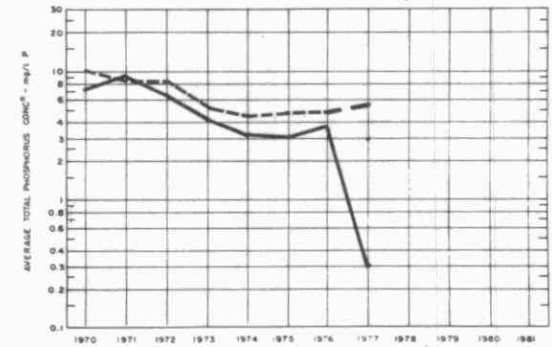
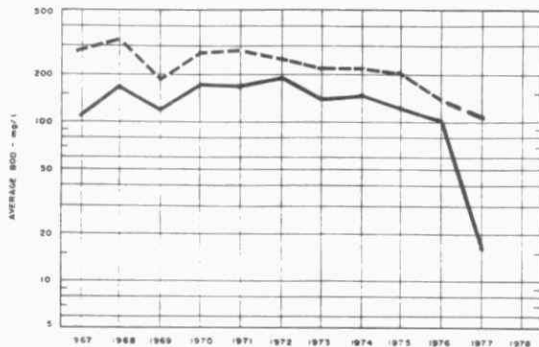
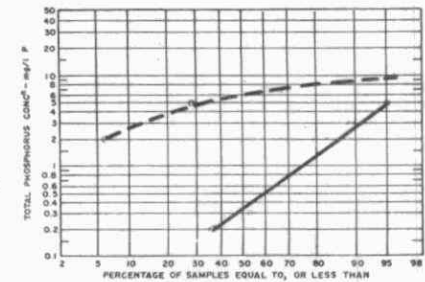


PLANT INFLUENT - - - - -
PLANT EFFLUENT —————

Susp. Solids



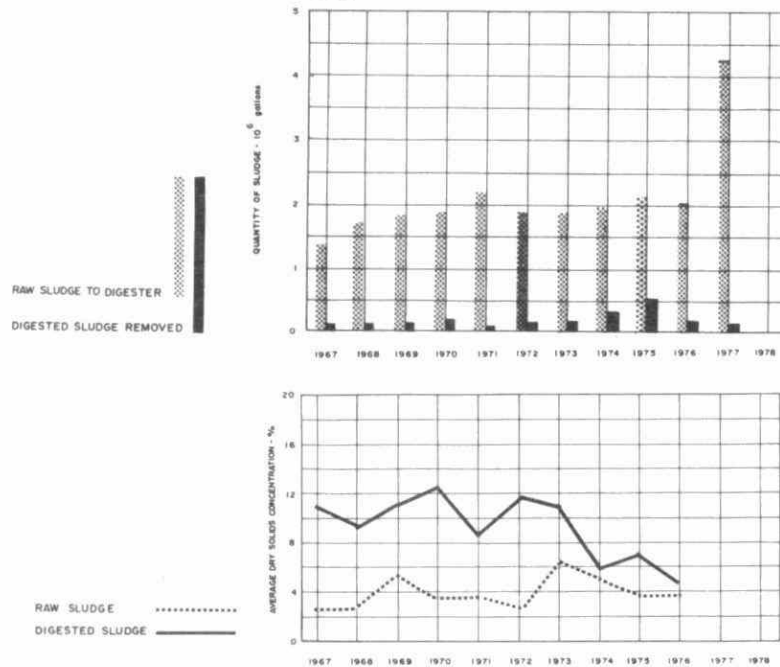
Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION CHLORINE USED 10 ³ pounds AVERAGE DOSAGE mg/l		SLUDGE DIGESTION and DISPOSAL							
				RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT TOTAL SOLIDS %	SLUDGE HAULED cubic yards
				QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ³ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %		
JAN		2.2	2.7	186	3.5		51	8.0			304
FEB		2.3		351	3.3			3.0			
MAR		2.9		301	14.9		40	7.5			240
APR	20	2.2		232	7.7			8.1			
MAY	40	2.1		250	3.4			2.8			
JUNE		2.1		244	4.1			4.9			
JULY		2.6	22.5	207	1.0		21	1.0			122
AUG		2.2	6.5	202	4.4			9.6			
SEPT											
OCT											
NOV											
DEC											
TOTAL	60	18.6	-	1973	-	-	112	-	-	-	666
AVG	.5 cubic feet/mil gal	2.3	5.5		5.3			5.6			222

Digestion



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION Cl ₂ USED 10 ³ pounds AVG DOSE mg/l		PRIMARY EFFLUENT BOD mg/l SUSPENDED SOLIDS mg/l		AERATION MLSS CONC mg/l F/M day ⁻¹ AIR 1000 ft ³ to BOD			SLUDGE DIGESTION and DISPOSAL											
									RAW SLUDGE		DIGESTED SLUDGE		SUPERNATANT T.S. %	AMOUNT HAULED cubic yards						
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %								
JAN																				
FEB																				
MAR																				
APR																				
MAY																				
JUNE																				
JULY																				
AUG																				
SEPT		2.4	2.9		66						357									
OCT	186	2.2	1.9		175	1700					720	4.0								
NOV	192	2.1	2.1	169	156	3200	.22	1.8			649	3.1	69					1.8		
DEC	222	2.4	2.2	107	43	5000	.09				541	3.6	74							
TOTAL	600	9.1	-	-	-	-	-	-	-	-	2267	-	-	-	-	-	-	-	-	-
AVG	1.5 cu ft/mil gal	2.3	2.3	144	109	3300	.16	1.8			567	3.6	72					1.8		

PLANT PERFORMANCE

SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS		
	TOTAL FLOW million gallons	AVERAGE DAY mil gal	MAXIMUM DAY mgd	INF. UENT mg/l	EFFLUENT mg/l	REDUCTION		INF. UENT mg/l	EFFLUENT mg/l	REDUCTION		INF. UENT mg/l P	EFFLUENT mg/l P	
						%	10 ³ pounds			%	10 ³ pounds			
JAN														
FEB														
MAR														
APR														
MAY														
JUNE														
JULY														
AUG														
SEPT	84.91	2.83	6.53					138	104	25	28.9			
OCT	107.86	3.49	5.21					152	46	70	115.4			1.6
NOV	99.81	3.33	4.47	83	19	77	63.9	106	21	80	84.8			0.3
DEC	107.63	3.47	5.79	145	9	94	146.4	109	18	83	97.9			5.6
TOTAL	400.21	-	-	-	-	-	-	-	-	-	-	-	-	-
AVG		3.28	6.53	108	17	84	91.0	116	30	74	86.0			5.6
No. of Samples	-	-	-	5	4	-	-	59	37	-	-			17

REGION 5
Northeastern

DESIGN DATA

DESIGN DATA

PROJECT: City of North Bay WPCP

PROJECT NUMBER:

TREATMENT: Activated Sludge

DESIGN FLOW: 8.0 mgd

BOD - Raw Sewage 150 mg/l
- Removal 85%

PRIMARY TREATMENT

GRIT REMOVAL

Type: Aerated grit tanks
Size: two, (each) 48' x 16' x 13' awl
(each: 62,300 I.G.)
Retention: (each) 22.4 min

SCREENS

Type: two, Mechanical

SEWAGE LIFT PUMPS

Type: WORTHINGTON
Two, variable-speed
One, constant-speed
Size: (total) 16 mgd

PRIMARY SEDIMENTATION

Type: Four, 90' x 30' x 11'
(741,300 I.G. total)
Retention: 2.2 hr

SECONDARY TREATMENT

AERATION TANKS

Type: Diffused Air, two-pass
Size: Two, 185' x 20' x 12' per pass
(1,108,000 I.G. total)
Retention: 3.3 hr

RETURN SLUDGE PUMPS
Type: WORTHINGTON
Size: Two, 550 gpm

SECONDARY SEDIMENTATION

Type: WALKER RSK
Size: Four, 60' x 60' x 11'
(988,400 I.G. total)
Retention: 3.0 hr
Loading: Surface-550 gal/ft²/day
Weir - 8,000 gal/ft/day

CHLORINATION

Type: four-pass
Size: two, 39' x 7.8' x 6.5' each pass
(98,700 I.G. total)
Retention: 18 min.

OUTFALL

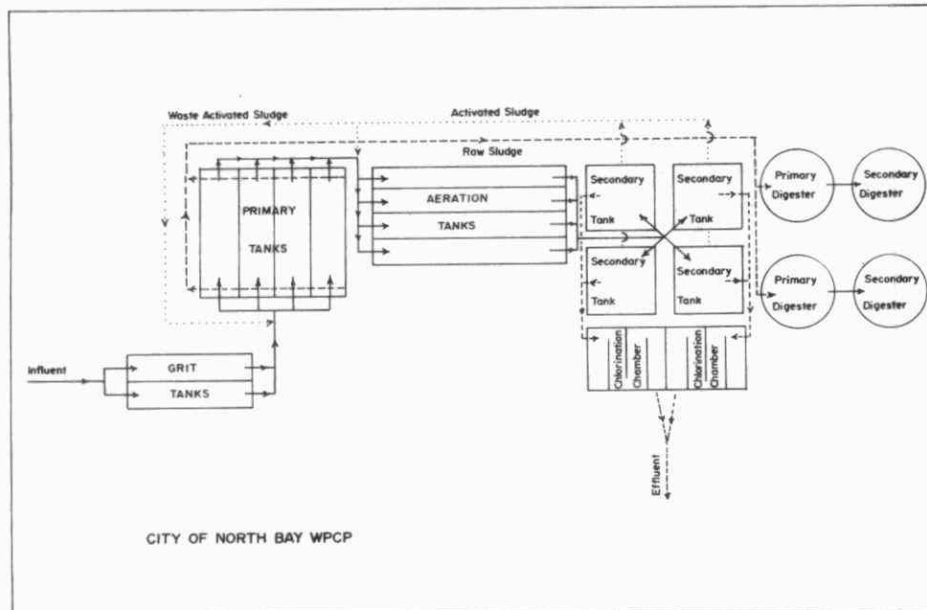
-1115 ft into Lake Nipissing

SLUDGE HANDLING

DIGESTION SYSTEM
Type: Two-Stage

Primary --
Type: DORR
Size: Two, 65' dia x 22' swd
(911,000 I.G. total)

Secondary --
Size: Two, 65' dia x 22' swd
(911,000 I.G. total)

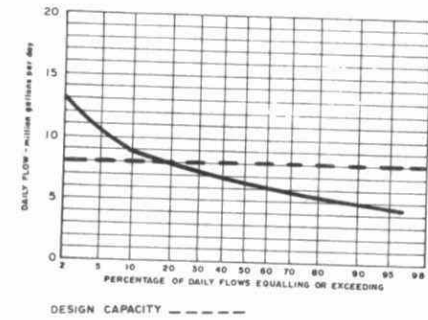
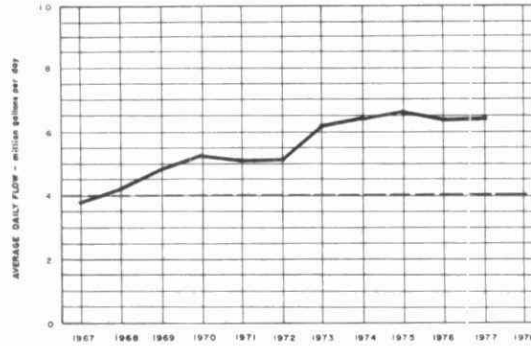


PLANT PERFORMANCE

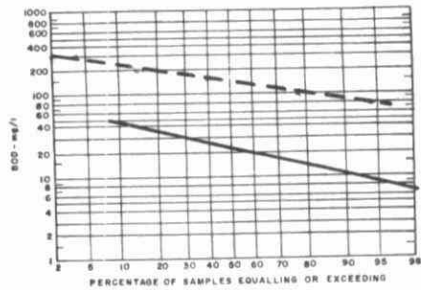
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT		
	million gallons	mi. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	139	4.5	4.9	170	32	81	192	271	36	87	328	11.1	1.9
FEB	130	4.6	6.0	157	29	82	166	180	26	86	200	6.5	2.1
MAR	270	8.7	23.0	116	25	78	245	123	30	76	251	4.6	0.9
APR	243	8.1	10.6	91	13	86	189	242	17	93	546	10.2	0.7
MAY	189	6.1	6.9	141	25	82	219	210	18	91	362	5.4	0.8
JUNE	188	5.2	5.9	154	13	92	265	562	18	97	835	4.8	0.6
JULY	216	7.0	16.6	249	15	94	505	218	27	88	412	7.6	1.5
AUG	236	7.6	9.5	89	15	83	175	157	9	94	349	3.4	0.7
SEPT	243	8.1	12.5	98	14	86	204	204	12	94	467	1.3	0.5
OCT	223	7.2	9.1	114	16	86	219	191	14	93	395	2.3	0.5
NOV	211	7.0	9.5	198	43	96	326	223	21	91	425	7.9	1.4
DEC	220	7.1	12.0	189	25	87	361	216	17	92	438	6.7	0.7
TOTAL	2508	-	-	-	-	-	3210	-	-	-	5242	-	-
AVG.	209	6.9	MAXIMUM 16.6	151	23	85	267	229	20	91	436	6.4	1.1
No. of Samples	-	-	-	51	50	-	-	260	254	-	-	76	78

NORTH BAY WPCP

PROCESS DATA FLOWS

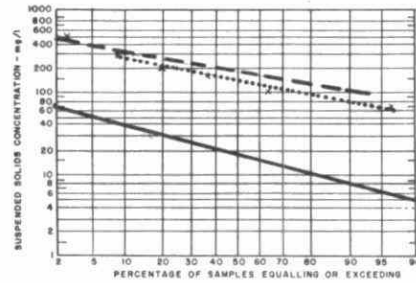


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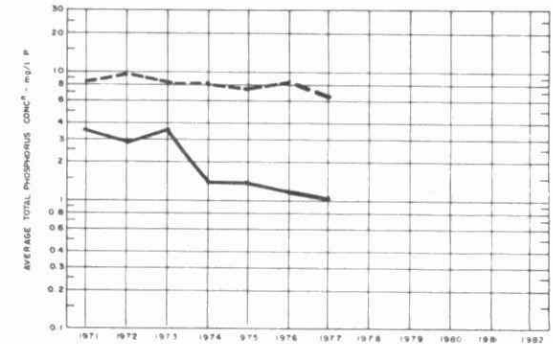
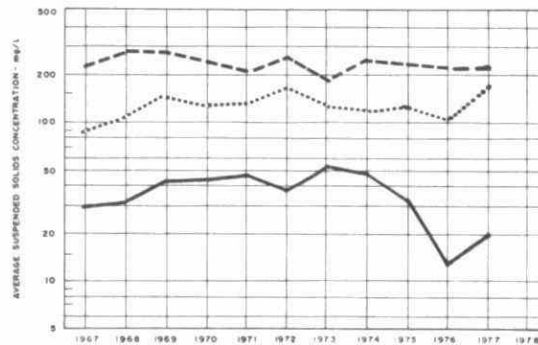
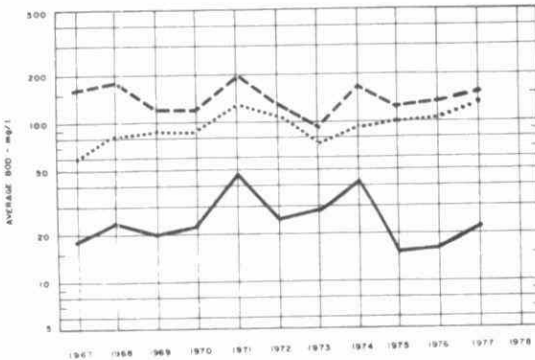
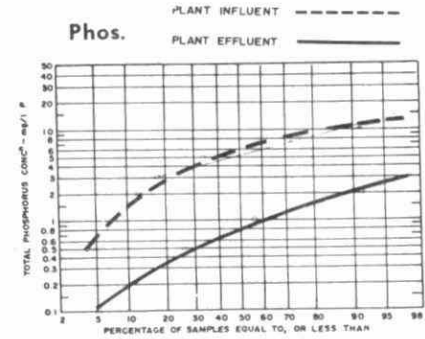


PLANT INFLUENT - - - - -
 PRIMARY EFFLUENT ······
 PLANT EFFLUENT —————

Susp. Solids

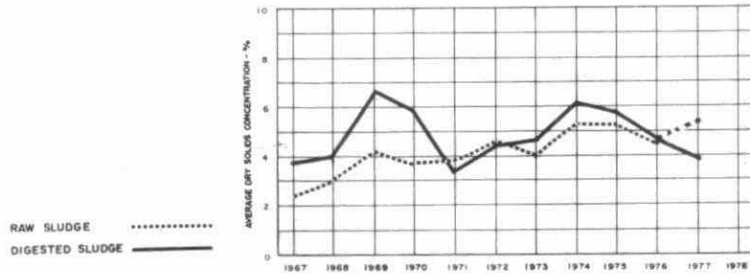
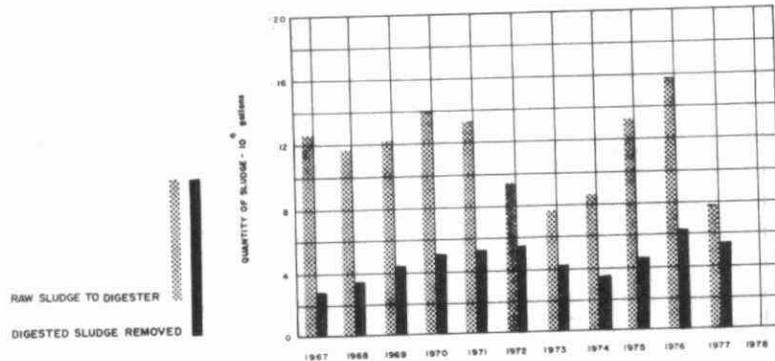


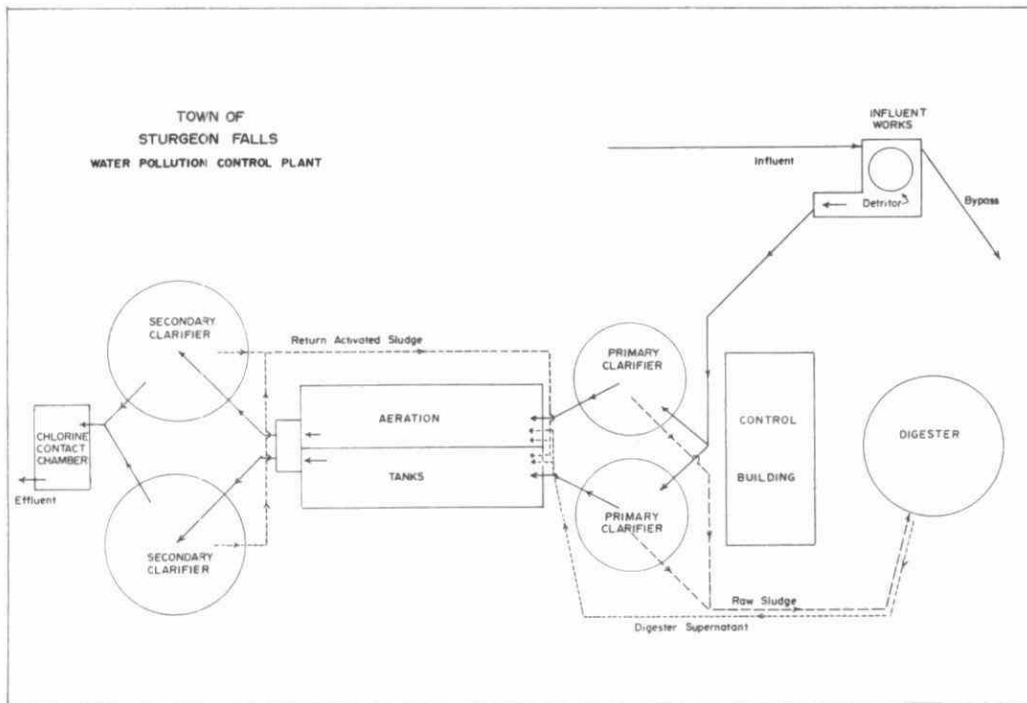
Phos.



TREATMENT DATA

MONTH	GRIT		CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL						
	QUANTITY REMOVED 10 ³ cubic feet	Cl ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M	AIR 1000 ft ³ lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT T.S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %		
JAN				177	103	2600	.28	.9	902	5.4	70	524	3.9	55	2.4	3112
FEB				143	95	3000	.20	1.3	655	5.3	70	460	3.0	56	2.2	2730
MAR	56			115	88	2700	.34	.8	563	7.5	65	579	3.0	54	2.5	3440
APR		3.1	2.9	87	111	2600	.25	1.0	499	7.1	62	491	4.2	52	0.8	2911
MAY	594	5.4	2.9	111	114	2600	.24	1.4	499	6.8	66	503	5.0	50	1.5	2987
JUNE		4.9	2.6	131	319	3200	.19	1.8	578	6.0	70	358	3.4	51		2122
JULY		6.0	2.8	121	153	3000	.26	1.4	563	4.8	58	518	3.0	54		3072
AUG	606	5.9	3.6	93	153	2600	.25	1.6	511	5.0	58	710	4.0	49		4217
SEPT		5.8	2.4	122	226	2900	.31	1.3	698	4.4	58	388	4.8	51		2302
OCT		6.8	1.7	308	368	3100	.65	.5	1000	4.1	58	514	3.9	50		3054
NOV	326	4.2	2.9	197	253	2900	.43	1.0	747	3.5	68	110	4.5	49	1.5	651
DEC				137	96	2100	.42	.9	668	4.7	61	182	3.6	54	1.7	1083
TOTAL	1582	42.1	-	-	-	-	-	-	7883	-	-	5337	-	-	-	31661
AVG.	0.6 cu ft/mil gal	6.0	2.7	145	173	2800	.32	1.2	657	5.4	64	445	3.9	52	1.8	2640





DESIGN DATA

Project Town of Sturgeon Falls WPCP
 Project No: 1-0012-66
 Treatment: Conventional Activated Sludge
 Design Flow: 1 MGD
 BOD: Raw Sewage 180 mg/l
 SS: Raw Sewage 200 mg/l

DIGESTER:
 45' dia. x 20' swd
 Volume: 31800 ft³

CHLORINE CONTACT CHAMBER:
 Four passes, each 16' x 6.2' x 11.75' swd (avg)
 Volume: 29000 l. Gal. Detention: 42 min.

PUMPING STATIONS:
 Two, prefabricated, each with 1250 IGPM pump
 One, built in place, 375 IGPM pump.
 One, built in place, 1040 IGPM pump.

PRETREATMENT

DETRITOR:
 One, 12' dia. x 1.6' awd
 Volume: 1100 l. Gal Detention: 1.6 min.

COMMINUTOR:
 Capacity: 4 MGD

BAR SCREENS:
 in channel, after comminutor

PRIMARY CLARIFIERS:
 Two, 36' dia. x 10' swd
 Volume: (total) 127,000 l. Gal.
 Detention: 3.0 hours
 Overflow rate: 490 l. Gal/ft²/day

AERATION TANKS:
 Two, 42' x 18' x 14' swd
 Volume: (total) 132,000 l. Gal.
 Detention: 3.2 hours
 Blowers: two, each 4320 cfm

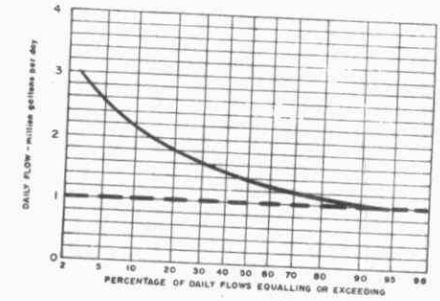
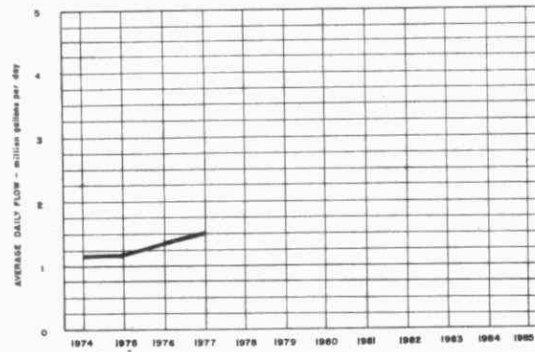
SECONDARY CLARIFIERS:
 Two, 36' dia. x 10' swd
 Volume: (total) 127,000 l. gal.
 Detention: 3.0 hours
 Surface overflow rate: 490 gal/ft²/day.

PLANT PERFORMANCE

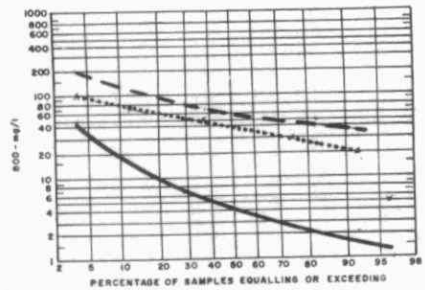
STURGEON FALLS WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mi. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	37.4	1.2	1.7	143	33	77	41	97	8	92	33	3.8	1.0
FEB	38.1	1.4	2.1	60	5	92	21	84	5	94	30	4.4	0.3
MAR	69.9	2.2	4.2	38	4	89	24	168	12	93	109	2.5	0.4
APR	52.4	1.8	2.6	58	3	95	29	82	9	89	38	3.1	0.5
MAY	33.7	1.1	1.3	78	5	94	25	66	9	86	19	4.4	0.7
JUNE	32.1	1.1	1.5	110	4	96	34	64	9	86	18	4.2	1.7
JULY	36.9	1.2	2.0	73	4	95	25	72	14	81	21	3.9	0.6
AUG	54.8	1.8	2.6	60	15	75	25	54	9	83	25	2.3	0.5
SEPT	52.6	1.8	3.3	50	4	92	24	81	13	84	36	2.2	0.5
OCT	49.4	1.6	2.3	65	4	94	30	71	6	92	32	3.4	0.5
NOV	48.7	1.6	3.2	69	3	96	32	88	6	93	40	3.4	0.7
DEC	41.4	1.3	2.9	90	2	98	36	59	6	90	22	3.2	0.2
TOTAL	544.7	-	-	-	-	-	359	-	-	-	414	-	-
AVG.	45.4	1.5	MAXIMUM 4.2	73	7	90	30	85	9	89	34	3.3	0.6
No. of Samples	-	-	-	23	23	-	-	73	73	-	-	23	23

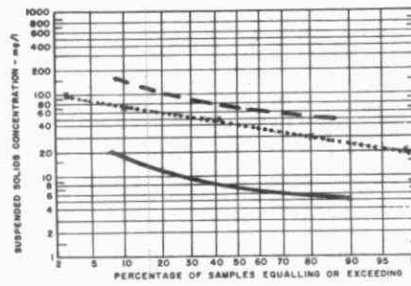
PROCESS DATA FLOWS



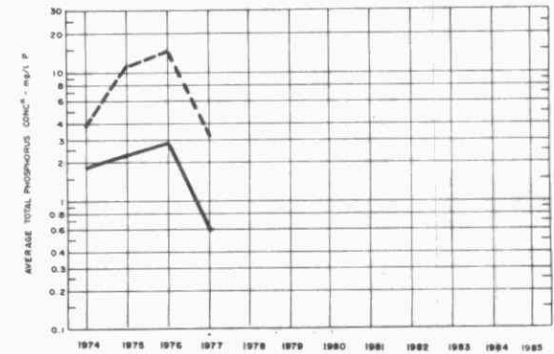
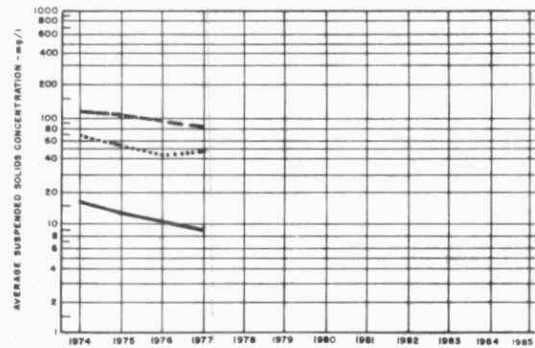
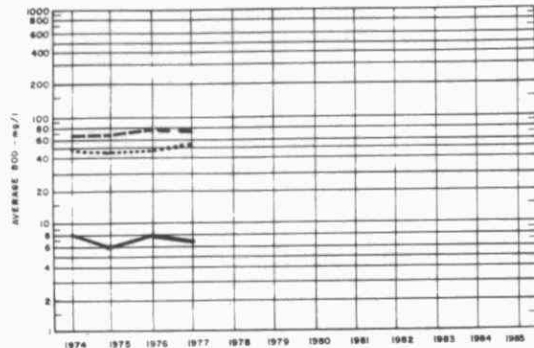
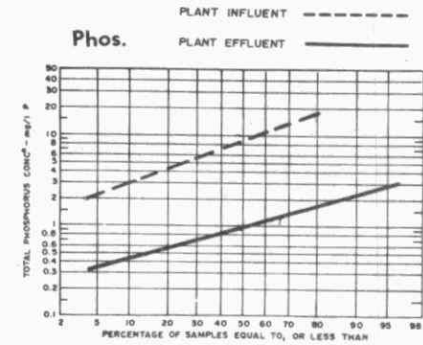
BOD₅



Susp. Solids



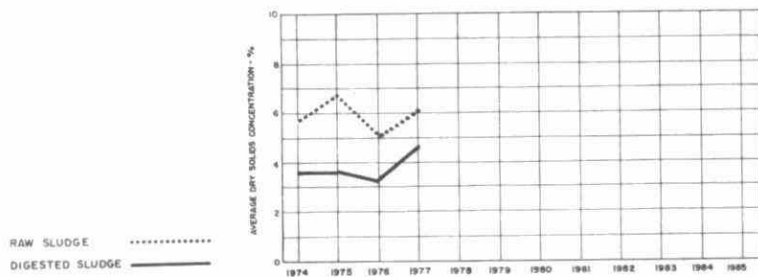
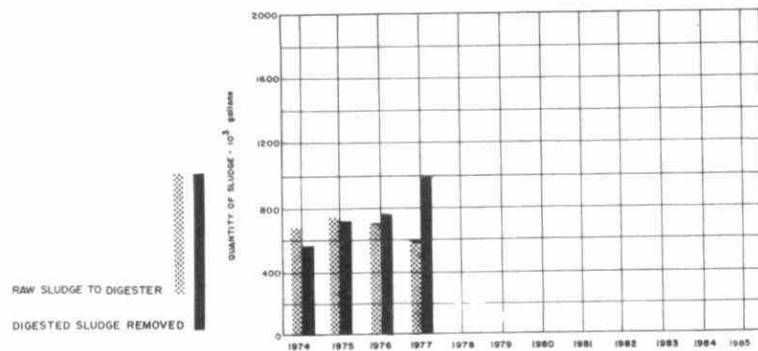
Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		Cl ₂ USED pounds	AVG DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 HP lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER- NATANT T. S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ³ gallons	TOTAL VOL SOLIDS %	VOL SOLIDS %	QUANTITY 10 ³ gallons	TOTAL VOL SOLIDS %	VOL SOLIDS %		
JAN	44	542	1.4	81	45	1800	.41	.3	38	4.7	68	45	2.8	54	.3	264
FEB	40	401	1.1	60	38	1600	.40	.2	35	5.1	70	12	2.8		.9	96
MAR	353	665	1.0	55	68	1700	.56	.1	68	9.7	48	78	3.8	43	1.4	463
APR	100	635	1.2	27	96	1800	.20	.4	49	6.0	58	49	4.5	38	1.4	288
MAY	210	669	2.0	64	45	1800	.30	.3	49	5.1	62	82	4.5	41	.9	484
JUNE	87	950	3.0	51	36	1800	.24	.3	45	5.1	60	66	4.5	37	1.1	392
JULY	223	841	2.3	34	35	2300	.13	.4	51	5.8	52	80	3.7	46	1.0	472
AUG	410	1033	1.9	57	44	2400	.32	.2	47	4.9	40	433	7.5	37	.8	2568
SEPT	386	962	1.8	36	48	2300	.21	.1	54*	6.4	24	61				361
OCT	200	1082	2.2	75	35	1900	.48	.1	3	8.5	42	10	4.4			58
NOV	120	966	2.0	58	50	2000	.36	.2	65	6.1	59				1.0	
DEC	90	712	1.7	50	35	1600	.31	.3	66	6.1	55	39	7.7	22	.2	231
TOTAL	2346	9458	-	-	-	-	-	-	570	-	-	965	-	-	-	5677
AVG.	4.3 cu ft/wk gal	788	1.7	54	48	1900	.33	.3	48	6.1	53	80	4.6	40	.9	473

* Raw sludge to truck.



DESIGN DATA

PROJECT: Valley East WPCP

PROJECT NO. 1-0039-66

TREATMENT: Conventional Activated
Sludge

DESIGN FLOW: 2.5 MGD

RAW SEWAGE P.S.

Type: One, Smart-Turner
Size: 1000 IGPM

Type: Three,
Size: Each 2000 IGPM

AERATED GRIT TANK

Size: 15' x 15' x 10' awd
Volume: 14,000 I.G.
Retention: 8.1 min

PRIMARY CLARIFIERS

Type: Two, 2-pass
Size: Each pass 12.5'x100'x9.5'awd
Volume(total): 296,000 I.G.
Retention: 2.8 hr

AERATION TANKS

Type: Two, rectangular
Size: each 25'x170'x14'awd
Volume(total): 743,000 I.G.
Retention: 7.1 hr

SECONDARY CLARIFIERS

Type: Two, 2-pass
Size: Each pass
15.75' x 125' x 9.5' awd
Volume(total): 467,000 I.G.
Retention: 4.5 hr

SLUDGE DIGESTION

PRIMARY DIGESTER

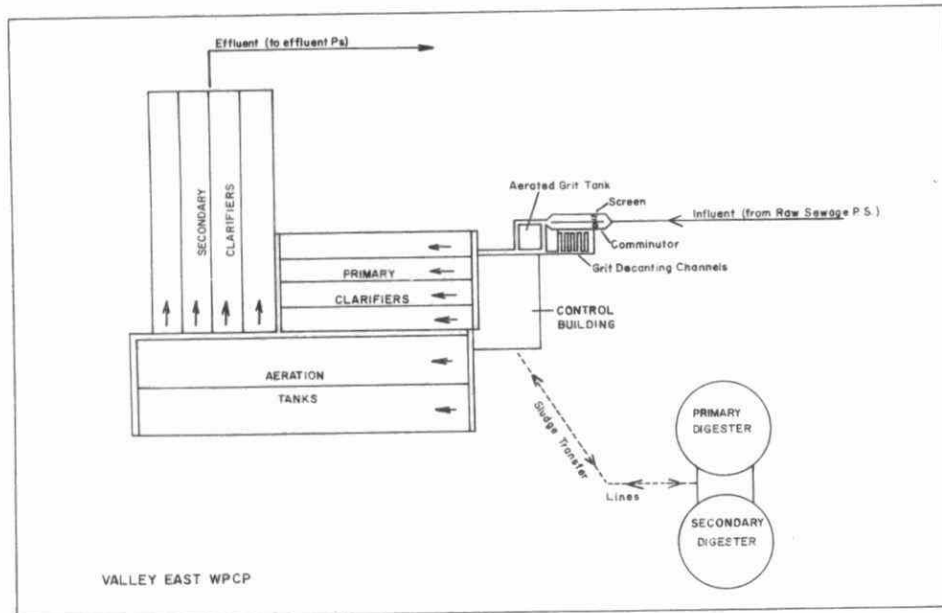
Size: 50' i.d. x 14' awd
Volume: 245,000 I.G.

SECONDARY DIGESTER

Size: 50' i.d. x 14' awd
Volume: 245,000 I.G.

EFFLUENT P.S.

Type: Two, Worthington
Size: Each 4323 IGPM

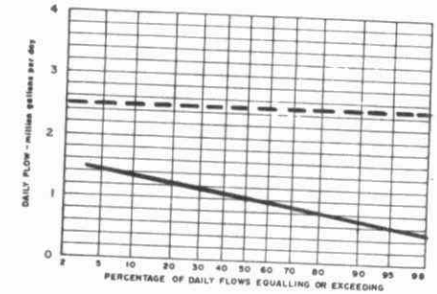
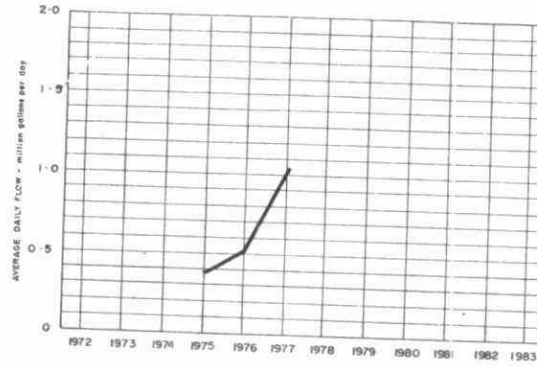


PLANT PERFORMANCE

VALLEY EAST WPCP

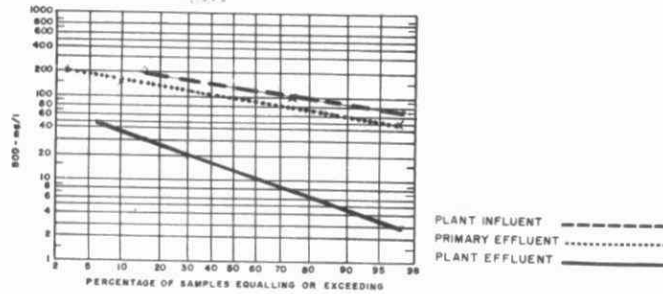
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	16.5	.53	.70	250	14	94	39	259	16	94	40	12.0	9.1
FEB	17.0	.61	.95	170	20	88	26	336	23	93	53	8.5	12.7
MAR	31.6	1.02	1.68	92	5	96	28	337	6	98	105	9.3	6.3
APR	44.3	1.48	1.88	118	5	96	50	425	5	99	186	8.5	4.1
MAY	31.2	1.04	1.21	125	12	90	35	276	7	97	84	10.4	7.7
JUNE	26.8	.89	1.10	170	22	87	40	205	7	97	53	9.5	7.7
JULY	28.4	.92	1.05	139	44	68	27	190	8	96	52	8.5	8.1
AUG	29.7	.96	1.15	153	24	84	38	207	8	96	59	8.5	7.2
SEPT	34.2	1.14	1.43	143	22	85	41	317	9	97	101	8.3	7.2
OCT	39.2	1.26	1.42	105	10	90	37	170	3	98	66	6.4	5.8
NOV	37.4	1.25	1.56	118	9	92	41	213	4	98	78	9.8	5.8
DEC	37.5	1.21	1.41	95	6	94	33	149	2	99	55	7.6	6.2
TOTAL	373.8	-	-	-	-	-	434	-	-	-	890	-	-
AVG.	31.2	1.02	1.88	133	17	87	36	245	7	97	74	8.7	7.3
No. of Samples	-	-	-	31	31	-	-	93	250	-	-	31	28

PROCESS DATA FLOWS

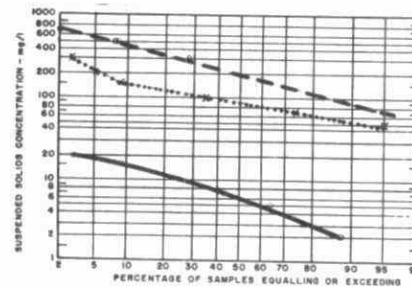


DESIGN CAPACITY - - - - -

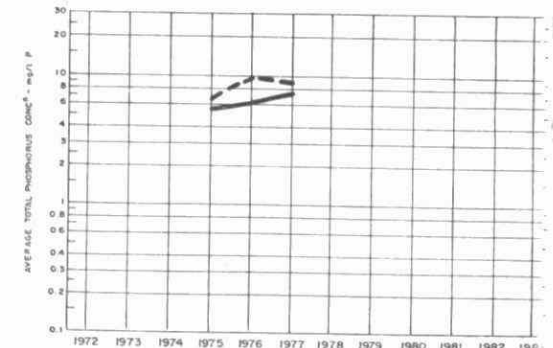
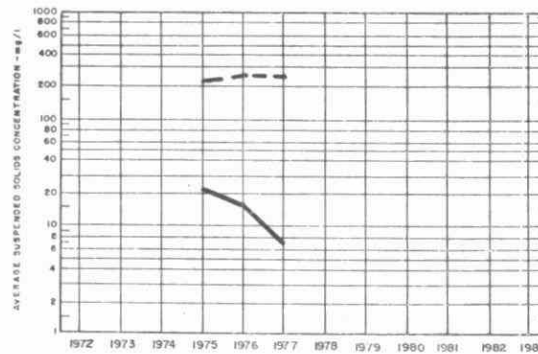
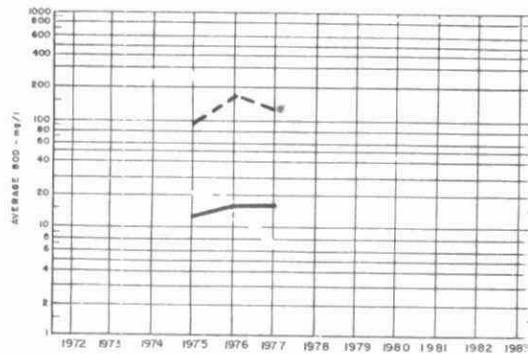
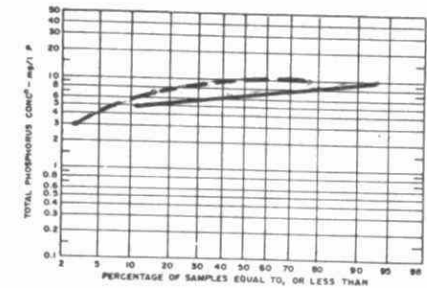
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
		CL ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M	AIR 1000 ft ³ lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER- NATANT T S %	AMOUNT HAILED cubic yards
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL SOLIDS %		
JAN	25	1.0	6.3	140	77	2200	.09	4.6	139	3.7	76	29	2.9	59	.3	171
FEB	22	0.9	5.4	145	81	1300	.18	2.8	171	3.4	73	44	4.0		1.9	260
MAR	43	1.0	3.2	175	196	1600	.29	1.2	144	4.8	65	66	3.0		2.0	391
APR	46	1.0	2.3	71	124	2400	.12	2.1	189	6.1	47	38			2.1	224
MAY	41	1.0	3.1	108	126	1400	.22	2.1	195	4.5	57	38			2.2	224
JUNE	34	1.0	3.8	128	84	1900	.16	2.5	110	3.8	64	87	3.8	51		516
JULY	14	1.0	3.6	130	98	1300	.25	2.6	87	4.2	69	63	3.8	48		372
AUG	25	1.0	3.5	135	109	1400	.25	2.3	28	4.3	68	50	3.0	51	1.3	298
SEPT	40	1.5	4.4	138	66	2000	.20	2.2	160	5.2	66	86	2.3	57	2.2	512
OCT	51	1.4	3.7	95	81	1800	.18	1.9	84	5.8	65	85	1.8	62	3.1	503
NOV	73	1.2	3.1	97	68	1800	.17	2.0	106	4.2	68	118	2.3		2.3	698
DEC	36	0.8	2.1	110	100	1800	.20	1.6	130	3.6	69	112	2.2		2.3	667
TOTAL	450	12.8	-	-	-	-	-	-	1543	-	-	816	-	-	-	4836
AVG.	1.2 cu ft/100 gal	1.1	3.4	123	101	1700	.19	2.3	129	4.5	66	68	2.9	55	2.0	403

RAW SLUDGE TO DIGESTER

DIGESTED SLUDGE REMOVED

RAW SLUDGE

DIGESTED SLUDGE _____

EXTENDED AERATION PLANTS

REGION 1
Southwestern

DESIGN DATA

PROJECT Town of Belle River

PROJECT NO. 1-0305-72

TREATMENT Extended Aeration

DESIGN FLOW 1.5 MIGD

PUMPING STATION

Two, raw sewage pumps (one standby) @430 IGPM each @ 32' TDH. Two vertical centrifugal pumps @ 1300 U.S. GPM each @ 68' TDH.

PRIMARY TREATMENT

Inlet Works

(5.45 MIGD) bar screens, 12" parshall flume, comminutor and by-pass.

Grit Removal

(5.45 MIGD) 1475 Cu. Ft. aerated grit tank (10'x10'x14.75' WD) equipped with air diffusion Equipment 50-100 SCFM.

SECONDARY TREATMENT

Aeration Tanks

(8.45 MIGD) Two 32,450 Cu. Ft. (0.405 MIG total) tanks. Contact Zone - 7390 Cu. Ft. Reaeration Zone - 25060 Cu. Ft. Aeration tanks are equipped with air diffusion equipment allowing 1325 SCFM per tank. Contact Zone (22'x24'x14' D) Reaeration Zone (74.66x24x14' D)

Air Supply

Three, identical, centrifugal air compressors 150 HP, 2710 CFM.

Final Clarifiers

Two, 65' diameter equipped with maximum sludge recirculation capacity 2.25 MIGD per tank. Scum baffle and removable rotating skimming device. Three, identical, horizontal, centrifugal, variable speed drive activated sludge return pumps @ 1050 IGPM @ 29' TDH. One scum pump @ 50 IGPM.

CHEMICAL TREATMENT

Phosphorous Removal

4000 IG chemical storage tank with two chemical metering pumps.

Chlorination

Two, 500 lb/day chlorinators. Chlorine contact chamber with two compartments, 3150 Cu. Ft. @ (25'x14'x9' D).

SLUDGE TREATMENT

Aerobic Digesters

Two tanks (98'x20'x14'D) 27,440 Cu. Ft. each. One equipped with air diffusion equipment allowing 1335 SCFM, and decanting device.

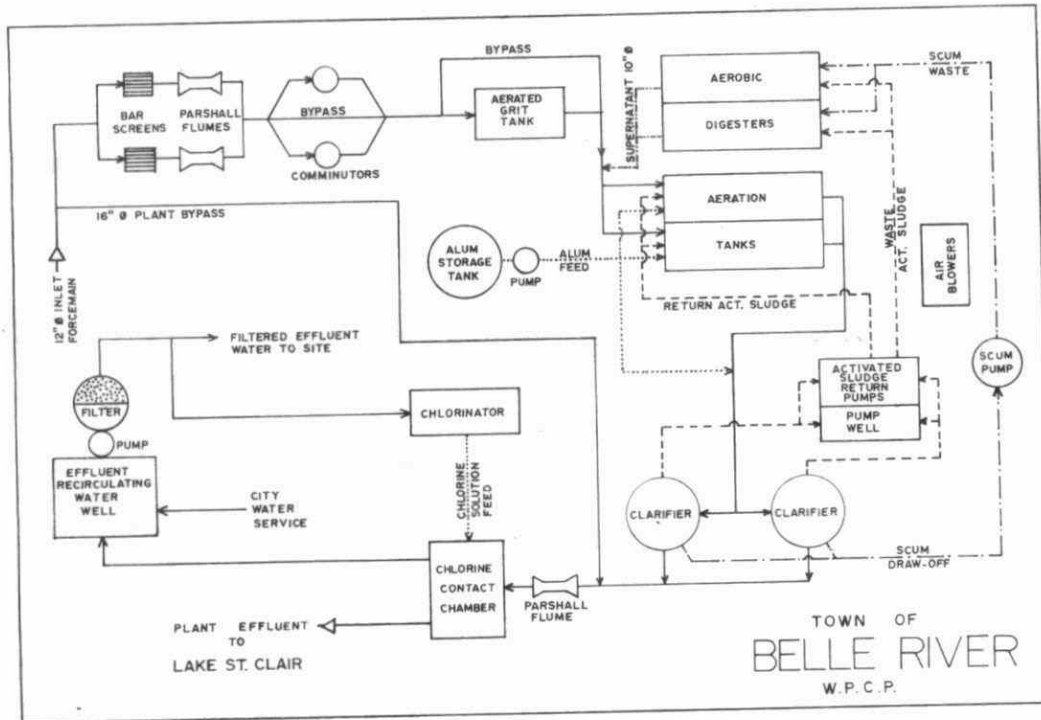
OUTLET WORKS

Bypass

From start of influent works to a point just ahead of the effluent parshall flume.

Outfall

To Lake St. Clair.

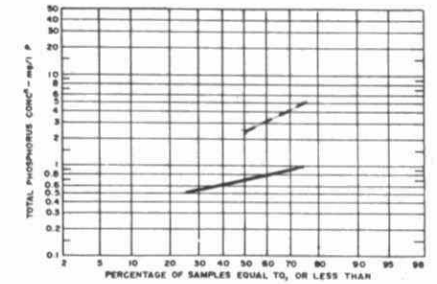
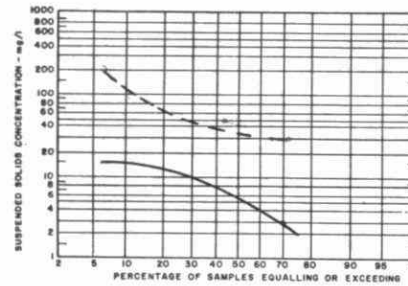
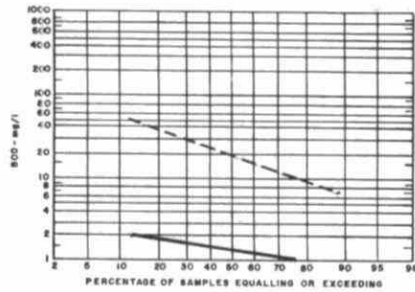
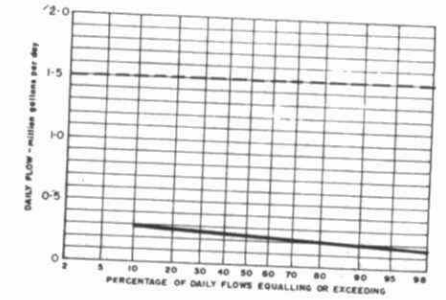


TOWN OF
BELLE RIVER
W. P. C. P.

PLANT PERFORMANCE

BELLE RIVER WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN													
FEB													
MAR													
APR													
MAY													
JUNE												2.0	2.5
JULY												1.5	1.4
AUG													
SEPT												1.8	.5
OCT	8.32	.26	.59	34	2	94	2.3	73	10	80	4.6		
NOV	9.34	.31	.45	75	2	97	6.7	96	9	90	8.0	6.0	.5
DEC	11.92	.38	.65	25	2	92	2.7	66	9	86	6.8	2.5	1.0
TOTAL	29.58	-	-	-	-	-	12.4	-	-	-	21.0	-	-
AVG.		.36	MAXIMUM .65	44	2	95	4.0	80	9	88	6.7	2.5	1.2
No. of Samples	-	-	-	15	7	-	-	13	16	-	-	6	6



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	Cl ₂ USED	AVG. DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ lb 800	10 gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN													
FEB													
MAR													
APR													
MAY													
JUNE													
JULY													
AUG													
SEPT													
OCT.	7	435	5.1	7700	.003	29.6							
NOV	9	465	5.0	6500	.009	10.4		9000	33	65.2	1.2	32	
DEC	6	615	5.1	6000	.004	24.2		11000	47		1.1	31	
TOTAL	22	1515	-	-	-	-		-	-	65.2	-	-	
AVG.	7 ca. 117m ³ /day	505	5.1	6700	.005	21.4		10000	40		1.2	32	

DESIGN DATA

PROJECT	Moore Twp. (Corunna) WPCP
PROJECT NO.	2-0088-61
TREATMENT	Extended Aeration
DESIGN FLOW	0.32 mgd
DESIGN POPULATION	4,000
BOD - Raw Sewage - Removal	150 mg/l 90-95%
SS - Raw Sewage - Removal	150 mg/l 90-95%

PRETREATMENT

Comminution

Type: Worthington comminutor
Size: One Model 15-C-4

Grit Removal

Type: C. P. Aer-Degritter with air lift
Size: 3780 gal
Retention: 17 min

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air, Single pass
Size: Two 84' x 17' x 14.25' (avg)
(40,098 cu ft or 254,000 gal)
Retention: 24.0 hours

Air Supply

Type: Satorbilt
Size: Two 1000 cfm

Diffusers

Type: C. P. Spargers
Spacing: 22 per tank @ 20' o-c

Secondary Sedimentation

Type: Dorr
Size: Two 22' x 22' x 12 1/2' swd
(75,300 gal)
Retention: 5.7 hours
Loading: Surface, 330 gal/ft²/day
Weir, 2,350 gal/ft/day

CHLORINATION

Type: W & T, Manual
Size: One 100 lb/day

Chlorine Contact Chamber

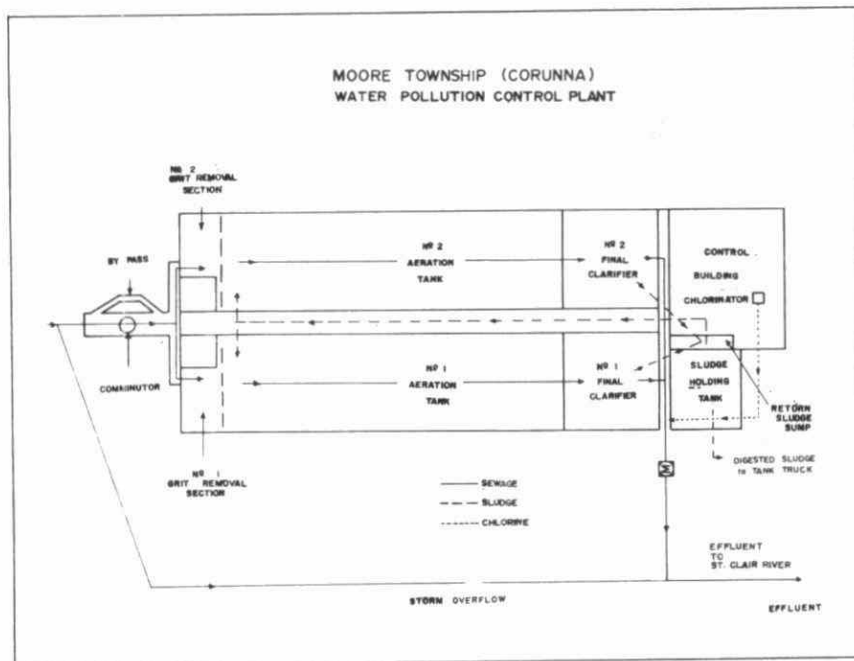
- in outfall

OUTFALL

196' of 48" dia corrugated pipe to
St. Clair River

SLUDGE HANDLING

Type: Sludge holding tank (decanted)
Size: One 17' x 17' x 15' (23,000 gal
@ 12.8' depth)

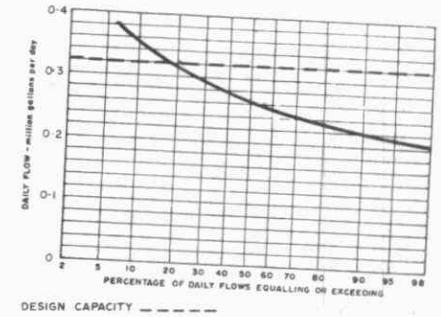
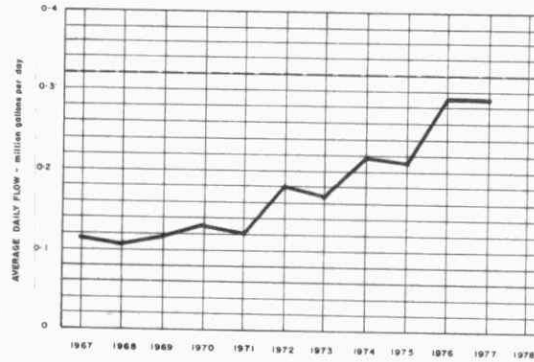


PLANT PERFORMANCE SEWAGE

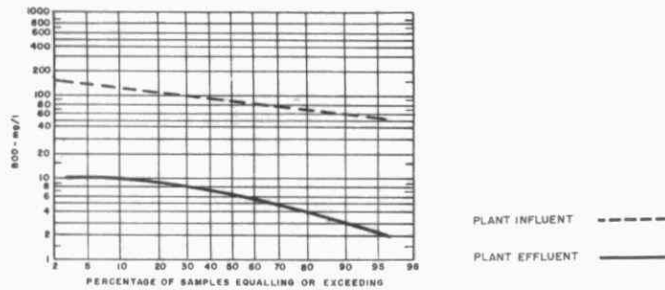
MOORE TWP. (CORUNNA) WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	10 ³ pounds	INFLUENT	EFFLUENT	REDUCTION	10 ³ pounds	INFLUENT	EFFLUENT
	million gallons	mi. gal	mgd	mg/l	mg/l	%		mg/l	mg/l	%		mg/l P	mg/l P
JAN	8.24	.26	.29	140	28	80	9.2	124	12	90	9.2	10.5	1.5
FEB	8.12	.29	.40	115	10	91	8.5	120	9	93	9.0		
MAR	11.24	.36	.53	109	8	93	11.3	120	10	92	12.3		
APR	10.34	.34	.47	105	9	91	9.9	108	11	90	10.0		
MAY	8.55	.27	.32	101	7	93	8.0	106	8	92	8.3	8.3	.9
JUNE	8.68	.28	.40	99	5	95	8.1	69	9	87	5.2	7.5	1.0
JULY	8.98	.28	.36	87	6	93	7.4	73	9	88	5.7	5.5	.7
AUG	8.05	.26	.29	108	9	91	7.9	87	8	90	6.3		
SEPT	8.48	.28	.34	108	9	91	8.4	113	9	92	8.8	8.3	.9
OCT	8.63	.27	.39	108	11	89	8.3	103	7	93	8.3	6.8	1.3
NOV	8.25	.27	.33	101	9	91	7.6	105	8	92	8.0	5.0	1.0
DEC	10.81	.34	.44	113	10	91	11.1	124	8	93	12.5	7.5	.9
TOTAL	108.37	-	-	-	-	-	106.2	-	-	-	94.3	-	-
AVG.		.29	MAXIMUM .53	107	9	91	8.8	95	8	91	7.8	7.5	1.0
No. of Samples	-	-	-	61	61	-	-	61	67	-	-	9	9

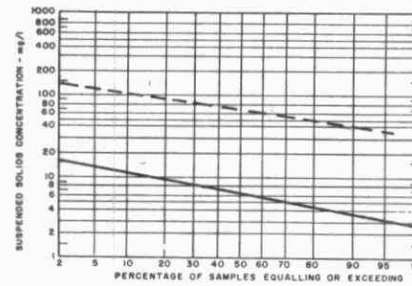
PROCESS DATA FLOWS



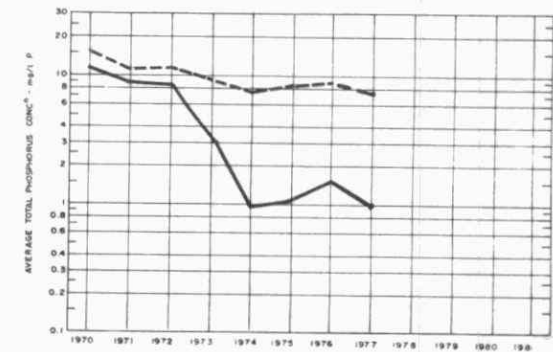
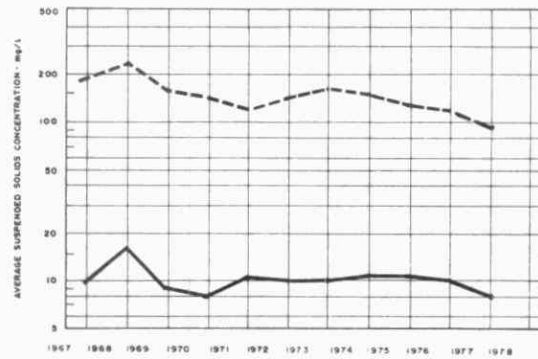
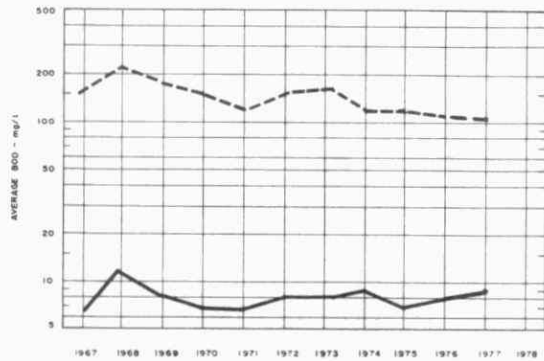
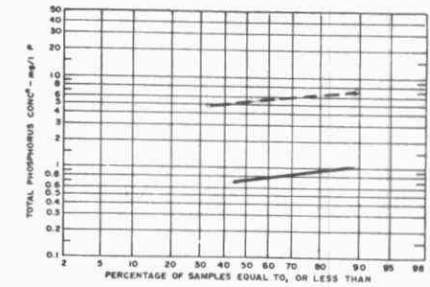
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	Cl ₂ USED	AVG. DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAILED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ lb 800	10 ³ gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN	16	465	5.6	4100	.03	9.6	60.0			23.4	16.0	60	110
FEB	14	420	5.1	4300	.03	9.4	80.0			25.1	3.7	64	150
MAR	18	465	4.1	4000	.04	7.9	100.0	3.8		35.2	3.8	60	210
APR	18	450	4.3	4300	.03	8.8	20.0			38.6	4.6	59	230
MAY	18	465	5.4	4500	.02	11.3	80.0			40.3	5.0	60	240
JUNE	16	450	5.1	4400	.02	10.9	80.0		61	31.9	4.6	55	190
JULY	19	465	5.1	4800	.02	12.7	40.0	5.0	54	38.7	4.7	53	230
AUG	18	465	5.7	4400	.02	11.6	100.0	4.9		50.5	4.8	53	300
SEPT	18	465	5.5	3600	.03	10.3	80.0	2.0	57	31.9	3.9	58	190
OCT	16	465	5.4	4300	.03	10.9	80.0	.8	56	43.9	3.1	53	261
NOV	18	450	5.4	5100	.02	11.5	100.0	.7	55	43.2	3.9	55	257
DEC	18	465	4.3	4800	.04	8.2	80.0	.4	58	32.4	4.4	64	193
TOTAL	207	5490	-	-	-	-	900.0	-	-	435.1	-	-	2561
AVG.	1.9 ce ft ³ /mi gal		5.0	4400	.02	10.2		2.5	56		5.2	57	

DESIGN DATA

PROJECT Village of Courtright WPCP

PROJECT NO. 1-0157-68

TREATMENT Extended Aeration

DESIGN FLOW 0.15 (U.S.) MGD

PRIMARY TREATMENT

Screening

1½" x 1½" bars @ 2" c/c

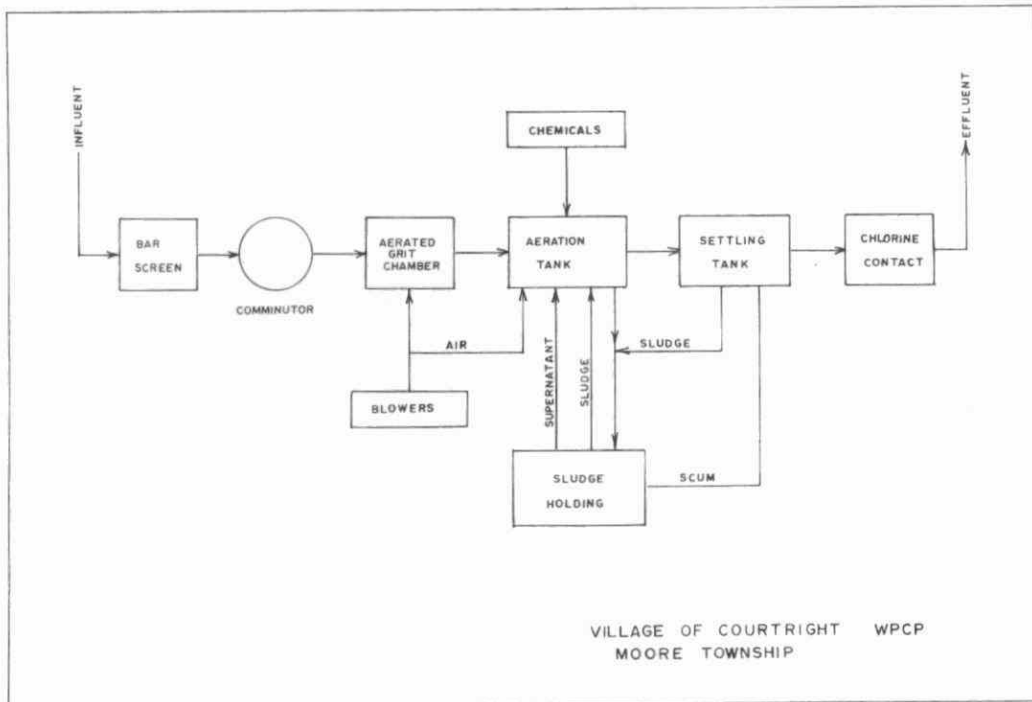
SECONDARY TREATMENT

Aeration Tanks

Volume: 0.12 mg

PUMPING STATION

2 submersible pumps plus one standby.
Any two rated at 385 IGPM.

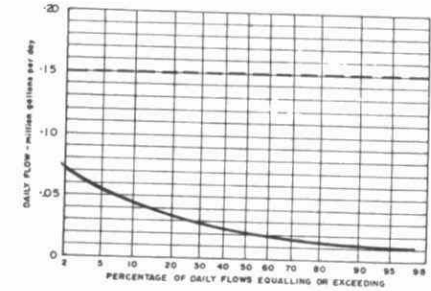


PLANT PERFORMANCE
SEWAGE

MOORE TWP. (COURTRIGHT) WPCP

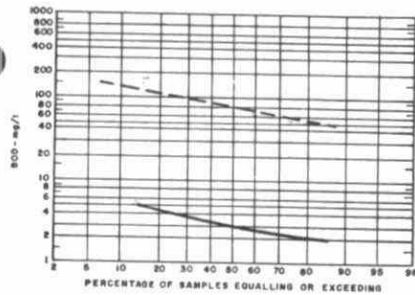
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mi. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	.91	.029	.036	132	6	95	1.1	114				21.0	4.6
FEB	.97	.034	.057	72	4	94	.7	236	8	97	2.2	9.8	4.9
MAR	1.03	.033	.101										
APR	.82	.027	.101										
MAY	.95	.030	.049	190	6	97	1.7	159	11	93	1.4	13.2	.9
JUNE	1.03	.034	.053	138	3	98	1.4	169	5	99	1.7	7.5	3.5
JULY	1.15	.037	.064	70	5	93	.7	59	10	83	.6	3.8	.3
AUG	.89	.028	.070	144	4	97	1.2	123	24	80	.9	7.5	1.4
SEPT	.81	.026	.042	102	6	94	.8	117	7	94	.9	6.0	.8
OCT	1.11	.035	.085	150	3	98	1.6	102	4	96	1.1	9.0	1.4
NOV	.84	.028	.098	170				176	7	96	1.4	9.3	1.3
DEC	1.50	.048	.132	84	5	94	1.2	100	20	80	1.2	7.5	.5
TOTAL	12.01	-	-	-	-	-	13.2	-	-	-	14.4	-	-
AVG		.032	MAXIMUM .132	114	4	96	1.1	130	10	92	1.2	9.3	2.1
No. of Samples	-	-	-	14	12	-	-	14	12	-	-	12	12

FLOWS



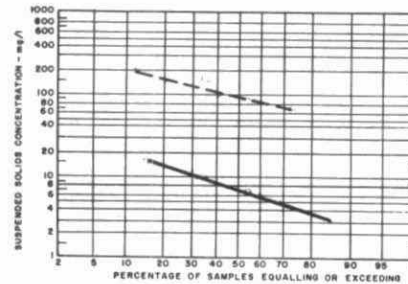
DESIGN CAPACITY -----

BIOCHEMICAL
OXYGEN
DEMAND

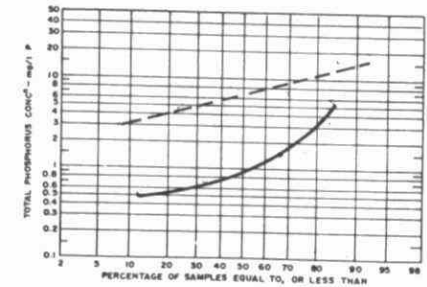


PLANT INFLUENT -----
PLANT EFFLUENT -----

SUSPENDED
SOLIDS



PHOSPHORUS



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED 10 ³ pounds	AVG. DOSAGE mg/L	MLSS CONC mg/L	F/M day ⁻¹	AIR USED 1000 ft ³ 15 800	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/L	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/L	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN		69	7.6	6700	.004	19.1		2.6	54				
FEB		60	6.2	4200	.004	30.0	30.0	.7	57	3.4	4.2	47	21
MAR	1	58	5.6	2700			45.0			8.0	4.4	51	47
APR		66	8.0	3600									
MAY	3	68	7.1	3400	.014	12.5	13.0			5.0	4.1	50	30
JUNE	2	66	6.4	2200	.018	15.0	39.0			3.3	5.6	46	20
JULY	7	105	9.1	3600	.006	28.7	15.0			1.7	5.2	48	10
AUG	9	93	10.4	3400	.009	17.7	32.0	.5	53	10.0	5.2	54	60
SEPT	6	92	11.3	1900	.011	28.7	20.0	.2	52				
OCT	3	82	7.4	1900	.022	13.5	60.0	.3	63	4.0	6.2	48	24
NOV	3	94	1.1	2900	.013		75.0	.4	61	3.5	5.4	43	20
DEC	2	88	5.8	3600	.009	18.1	60.0	.4	61	3.5	4.4	63	21
TOTAL	36	941	-	-	-	-	389.0	-	-	42.4	-	-	253
AVG.	2.9 cu ft/mi gal		7.8	3300	.011	20.3		.7	57		4.9	50	

DESIGN DATA

PROJECT: Village of Paisley WPCP

PROJECT NO. 1-0101-67

TREATMENT: Extended Aeration

NOMINAL FLOW: 0.155 MIGD

BOD - Raw Sewage: 264 lb/day

RAW SEWAGE P.S.

Capacity: 0.7 USMGD

COMMINUTOR

Type: Condux SCHQU150-A
Size: 57 rpm

GRIT CHANNELS

Size: Two, each 20'x2'x2.8' s/wd
Volume (each): 700 I.G.
Retention: (each) 6.5 min.

OXIDATION DITCH

Volume: 122,200 I.G.
Retention: 18.9 hr.

ROTORS

Type: Pumps and Softeners Ltd.
Size: Two, each 8' length x 2.3' dia.

SECONDARY CLARIFIERS

Type: Two, circular
Size: each 24' dia x 10' s/wd
Volume (total): 56,500 I.G.
Retention (total): 8.7 hr
Loading:
- Surface: 340 IG/ft²/day
- Weir: 1033 IG/ft/day

SLUDGE PUMPS

Type: Two, each 163 USGPM @ 15' TDH

CHLORINATION CHAMBER

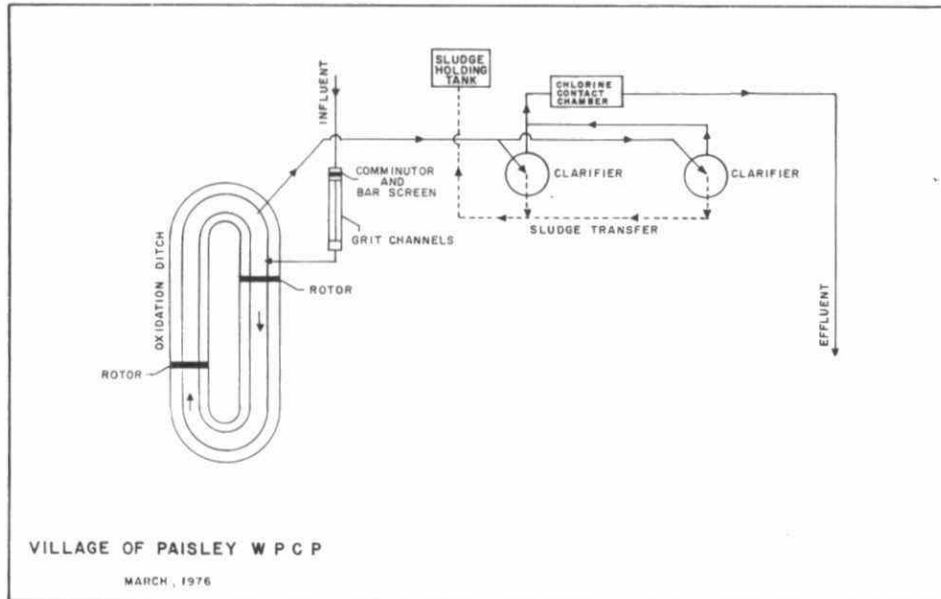
Volume: 2845 I.G.
Retention: 26 min.

CHLORINATOR

Type: F and P
Capacity: 40 lb/day

SLUDGE HOLDING TANK

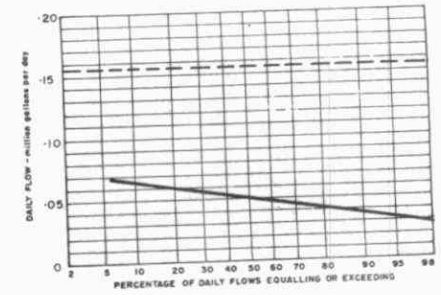
Size: 17'x10'x12' awd
Volume: 11,000 I.G.



PLANT PERFORMANCE
SEWAGE

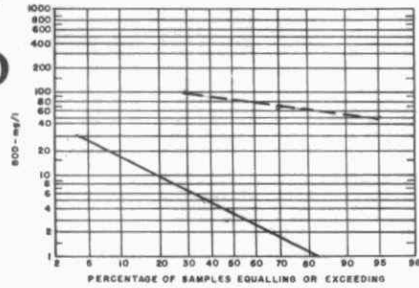
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	1.24	.039	.055	119	35	71	1.0	101	25	75	.94	6.8	4.2
FEB	1.36	.048	.072	112	20	82	1.2	168	9	95	2.16	9.0	3.8
MAR	4.57	.081	.638	140	13	91	5.8	154	8	95	6.68	6.4	2.4
APR	1.62	.054	.118	152	4	97	2.4	162	6	96	2.52	8.8	3.3
MAY	1.28	.041	.052	131	2	98	1.6	347	8	98	4.34	10.2	5.4
JUNE	1.44	.047	.077	165	2	99	2.3	219	6	97	3.05	10.8	4.6
JULY	1.52	.049	.093	128	2	98	1.9	105	7	93	1.49	7.5	5.9
AUG	2.08	.067	.128	107	3	97	2.1	77	4	94	1.52	5.5	2.1
SEPT	2.32	.077	.121	130	2	98	2.9	130	3	97	2.95	4.3	1.6
OCT	2.17	.069	.096	100	6	94	2.0	148	10	93	2.99	6.2	2.4
NOV	2.04	.067	.090	165	5	96	3.2	275	13	95	5.34	10.2	3.5
DEC	2.14	.068	.094	112	6	94	2.2	126	13	89	2.41	6.7	3.1
TOTAL	23.78	-	-	-	-	-	28.3	-	-	-	36.38	-	-
AVG.	-	.065	MAXIMUM .638	127	8	93	2.3	162	9	94	3.03	7.4	3.4
No. of Samples	-	-	-	24	23	-	-	24	23	-	-	23	22

FLOWS



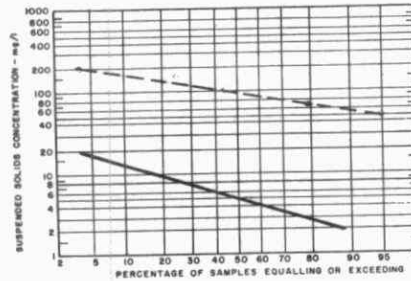
DESIGN CAPACITY - - - - -

BIOCHEMICAL
OXYGEN
DEMAND

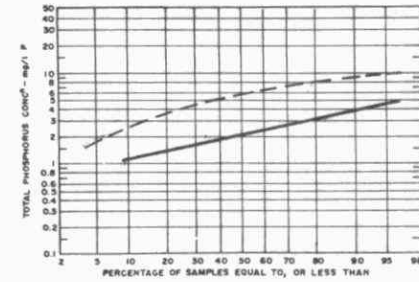


PLANT INFLUENT - - - - -
PLANT EFFLUENT —————

SUSPENDED
SOLIDS



PHOSPHORUS



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG DOSAGE mg/l	M.L.S.S. CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	2	80	6.7	5000	.006			1.4	71				
FEB		6	4.4	4500	.009			3.1	42				
MAR	6			2800	.033			3.5	60				
APR	2			8000	.008		3.0	1.9	54				
MAY		42	3.2	7300	.005		3.0	2.7	52				
JUNE	4	79	5.4	5700	.011		2.1	1.0	49				
JULY	2	79	5.2	7700	.006			1.9	43				
AUG		84	4.0	4700	.012		5.7	3.6	50				
SEPT	2	89	3.8	4700	.017		5.4	2.2	48				
OCT		3	1.3	6200	.009		15.1	1.6	56	18.20	25000		108
NOV	2			4500	.020		25.5	2.1	61				
DEC	2			3700	.016		7.8	.9	68				
TOTAL	22	462	-	-	-	-	67.5	-	-	18.20	-	-	108
AVG.	0.9 cu ft/m ³ gal	58	4.8	5400	.012			2.1	54				

DESIGN DATA

PROJECT: Town of Southampton WPCP
 PROJECT NO: 1-0027-66
 TREATMENT: Modified extended aeration
 DESIGN CAPACITIES: Winter - 0.29 MIGD
Summer - 0.67 MIGD

DESIGN POPULATION: Summer- 6700
Winter- 2900

BOD - RAW SEWAGE: Winter-493 lb/day
Summer-950 lb/day

PUMPING STATIONS

P.S. NO. 1
 PUMPS
 Type: variable-speed
 Size: two each 1825 USGPM @ 108' TDH

SCREENING
 Type: Bar screen (manually cleaned)
 Gravity overflow

P.S. NO. 2
 PUMPS
 Type: FLYGT Submersible
 Size: Two, each 750 USGPM @ 37' TDH

P.S. NO. 3
 PUMPS
 Type: FLYGT Submersible
 Size: Two, each 250 USGPM @ 73' TDH

PRETREATMENT

SCREENING
 Bar Screen (manually cleaned)

COMMINUTION
 Size: 16" dia
 Motor: 3 HP

BIOLOGICAL TREATMENT

OXIDATION DITCHES

Two, Volume (each) 290,000 I.G.
 Retentions: winter (1 ditch): 24 hr
summer (2 ditches): 20.8 hr

AERATORS (1 per ditch)

Size: two, each 27.5" dia x 20' l
 Motors: 25 HP

FINAL SEDIMENTATION TANKS

Size: Two, each 14' x 48' x 12' awl
 Volume (total): 100,000 I.G.
 Retentions: winter (1 tank): 4.2 hr
summer (2 tanks): 3.6 hr
 Loadings: surface-winter (1 tank):
 430 IGPD/ft²
summer- (2 tanks) 500 IGPD/ft²

Weir: winter (1 tank)
 4,000 IGPD/lin ft
summer (2 tanks)
 4620 IGPD/lin ft

RETURN ACTIVATED SLUDGE PUMPS

Type: Centrifugal
 Size: Two, each 550 USGPM @ 25' TDH

CHLORINATION

CHLORINE CONTACT CHAMBER

Size: One, 6' x 48' x 9' awl
 Volume: 16,200 I.G.
 Retentions: winter (@ 0.29 MIGD) 80 min
summer (@ 0.67 MIGD) 35 min

SLUDGE HANDLING

SLUDGE HOLDING TANK

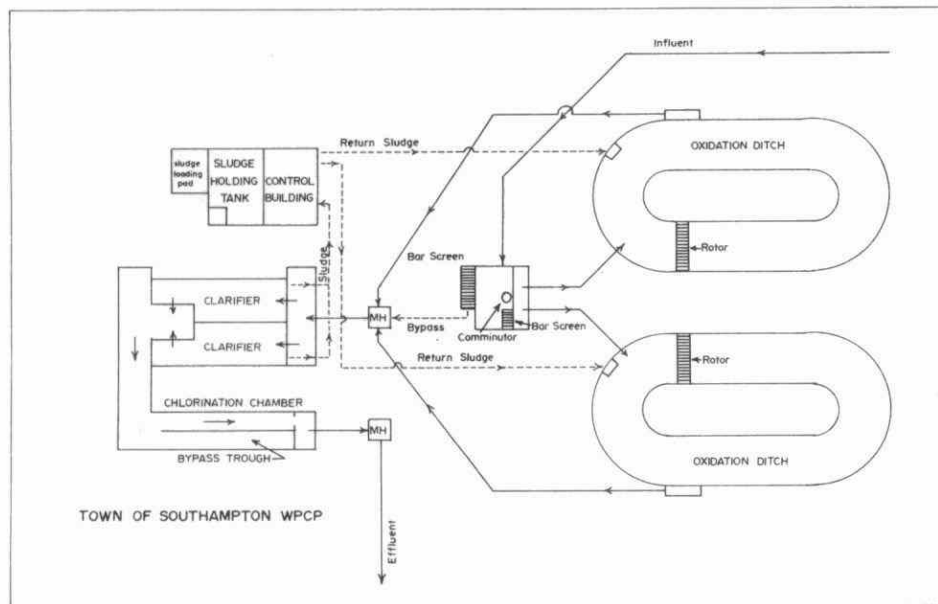
Size: One, 21' x 30' x 11' awl
 Volume: 6,700 ft³
 Loading: winter-2.31 ft³/cap.
summer-1.00 ft³/cap.

SLUDGE PUMP

Type: Duplex plunger
 Size: One, 200 USGPM @ 40' TDH

SLUDGE AERATION

Size: One, 270 cfm @ 7.0 PSIG
 Motor: 10 HP, 1150 rpm

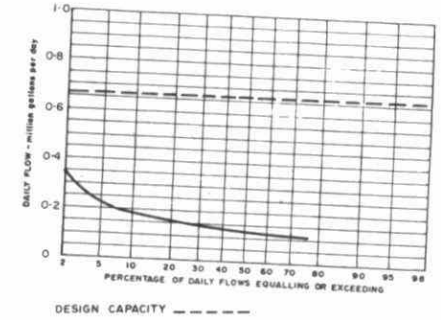
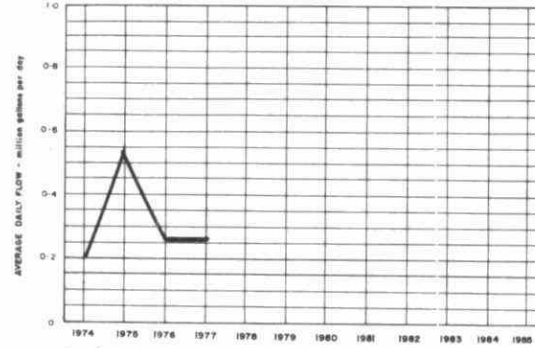


PLANT PERFORMANCE SEWAGE

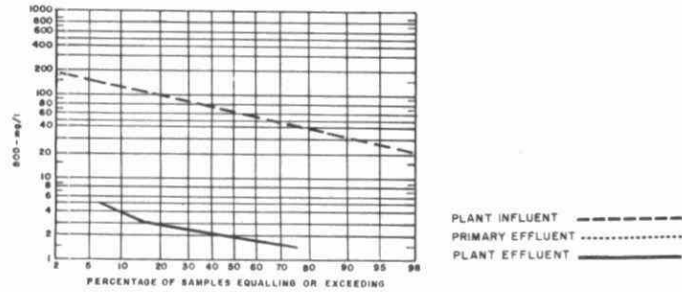
SOUTHAMPTON WPCP

PROCESS DATA FLOWS

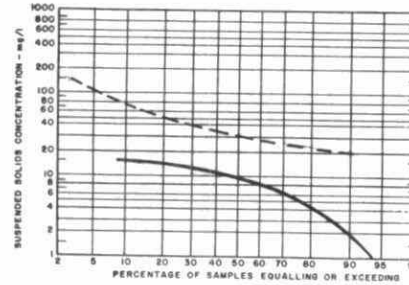
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	4.36	.14	.16	137	4	97	5.8	197	7	96	8.3		
FEB	4.98	.17	.24	104	4	96	5.0	111	8	93	5.1		
MAR	10.05	.32	.65	39	6	85	3.3	66	20	70	4.6	2.8	1.05
APR	6.48	.22	.34	167	5	97	10.4	229	14	94	13.9	3.8	2.30
MAY	6.01	.19	.18	111	1	99	6.6	158	6	96	9.1	6.0	2.75
JUNE	5.95	.19	.62	82	3	96	4.7	79	6	92	4.3	3.9	4.00
JULY	7.28	.23	.28	96	2	98	6.8	125	4	97	8.8	7.6	4.60
AUG	7.84	.25	.28	110	2	98	8.4	135	2	99	10.4	5.8	4.00
SEPT	7.12	.23	.29	55	1	98	3.8	60	1	98	4.2	4.4	3.60
OCT	8.57	.27	.48	61	1	98	5.1	88	6	93	7.0	3.9	2.40
NOV	7.07	.23	.25	63	2	97	4.3	94	6	94	6.2	4.0	2.90
DEC	6.90	.22	.28	81	2	98	5.4	139	3	98	9.4	5.0	2.20
TOTAL	82.61	-	-	-	-	-	73.5	-	-	-	95.8	-	-
AVG.		.23	MAXIMUM .65	92	3	97	6.1	123	7	94	8.0	3.9	3.2
No. of Samples	-	-	-	12	12	-	-	12	12	-	-	12	12



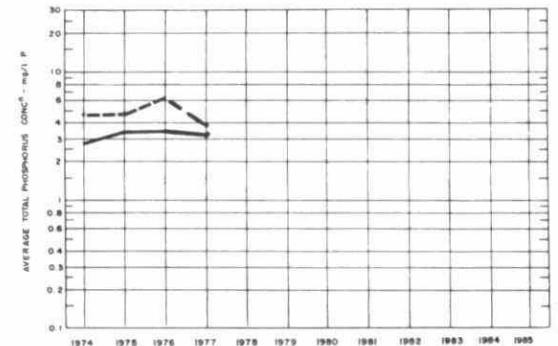
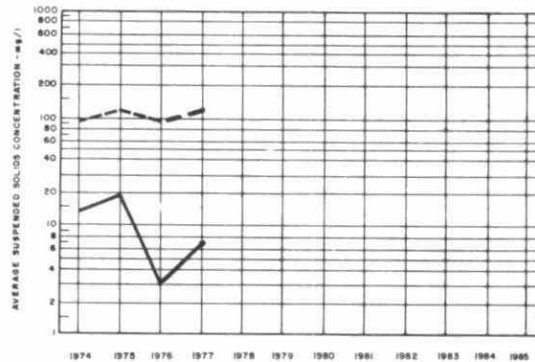
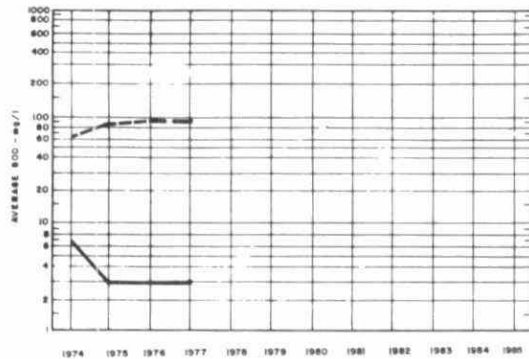
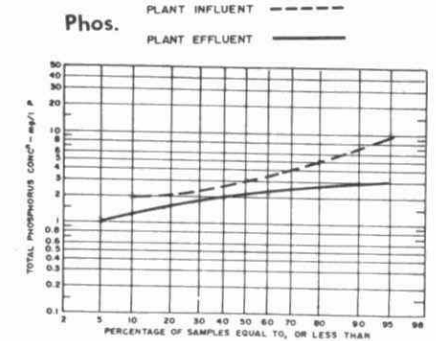
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	CL ₂ USED	AVG DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ lb 800	10 ³ gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN		344	7.9	4700	.018		3.1	9000	44				
FEB		286	3.6	4500	.029		7.0	10000	40		22000	63	
MAR		416	4.1	4600	.028		8.2	9000	40	28	19000	63	165
APR		300	4.6	4200	.040		7.5	10000	26	24	18000	65	143
MAY		306	5.9	3800	.022		13.6	7000	40	22	19000	63	132
JUNE		252	4.2	3600	.017		16.3	12000	24	48	22000	61	286
JULY		279	3.8	2800	.017		47.9	8000	59	60	13000	62	354
AUG		292	3.7	2500	.027		22.6	8000	28	27			162
SEPT		298	4.2	2800	.035			8000	32				
OCT		318	4.3	3700	.040			5000	34	82			486
NOV		276	4.2	5800	.019			12000	47				
DEC		244	3.6	4900	.019		.2	14000	30				
TOTAL		3611	-	-	-	-	126.4	-	-	291	-	-	1728
AVG.	cu. ft./mil gal		4.1	4000	.026		14.0	9000	37		18000	63	

DESIGN DATA

PROJECT Westminster Twp. WPCP
 PROJECT NO. 2-0033-59
 TREATMENT Extended Aeration
 DESIGN FLOW 0.25 mgd
 DESIGN POPULATION 5,000

RAW SEWAGE PUMPS

Make: Chicago Pump
 #1 - 100 gpm @ 23' tdh
 Type: 4x4, 2hp electric
 #2 - 100 gpm @ 23' tdh
 Type: 4x4, 2hp electric
 with standby Wisconsin
 THD size 3½ x 3½ gasoline engine
 #3 - 250 gpm x 20' tdh
 Type: LMC4, 3 hp electric

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air; single-pass
 Size: Two 54' x 27' x 14' (252,000 gal)
 Retention: 24.2 hr

Diffusers

- Discusers on swing arm

Air Supply

Type: Sutorbilt
 Size: Three 337 scfm @ 7 psi

Secondary Sedimentation

Type: Link-Belt
 Size: Two 54' x 8' x 9.25' (50,200 gal)
 Retention: 4.80 hr
 Loading: Surface, 580 gal/ft²/day
 Weir, 1955 gal/ft/day

CHLORINATION

Type: W & T
 Size: One 100 lb/day

Chlorine Contact Chamber

Size: One 10' x 7' x 9' (3930 gal)
 Retention: 22.7 min

OUTFALL

- to Dingman Creek

TERTIARY TREATMENT

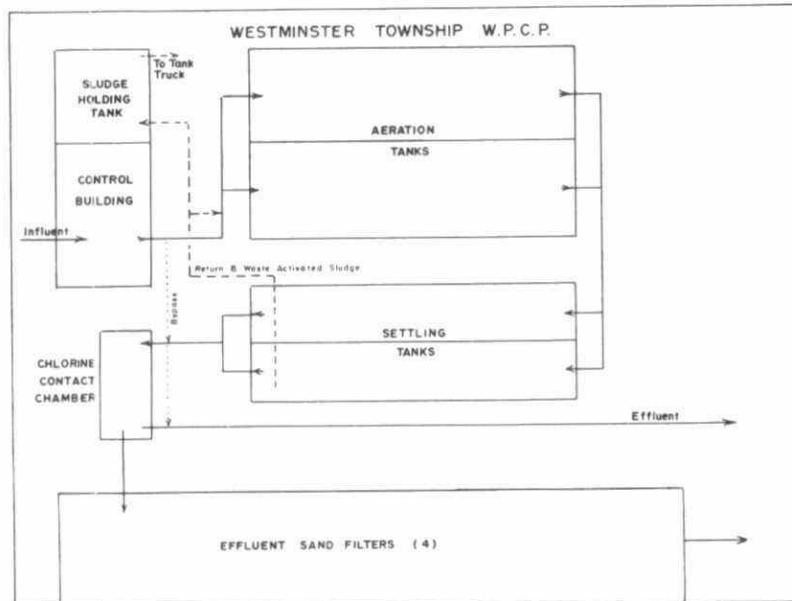
Effluent Sand Filters

Size: Four units (26,900 sq ft or 0.62 acres)
 Depth: 30" of sand (min)
 Capacity: .405 mil gal/acre/day

SLUDGE HANDLING

Sludge Holding Tank

Size: 4,460 cu ft or 27,850 gal



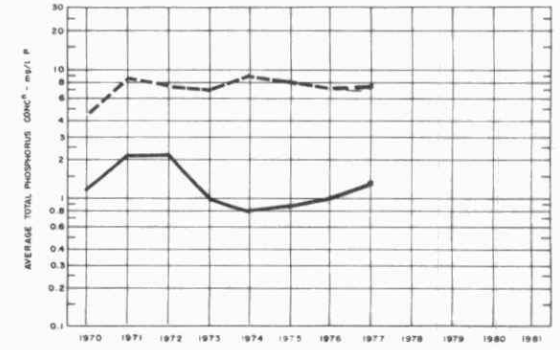
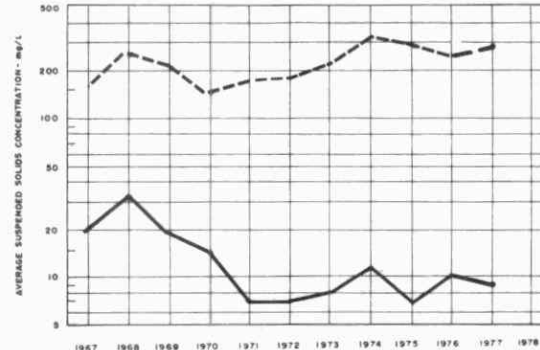
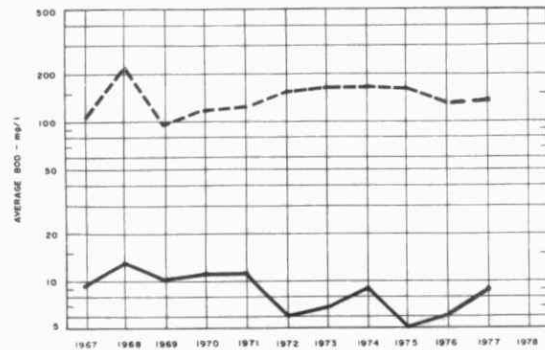
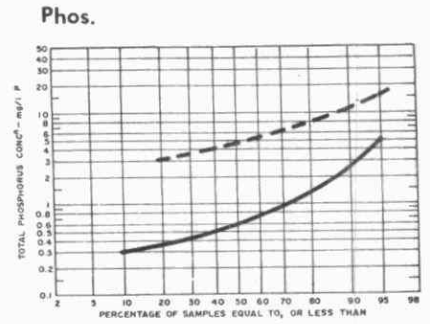
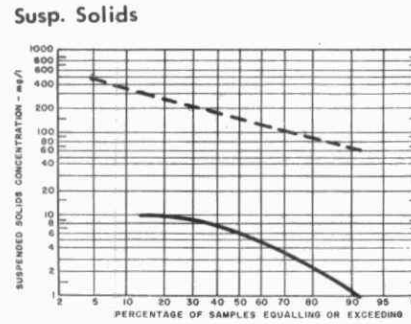
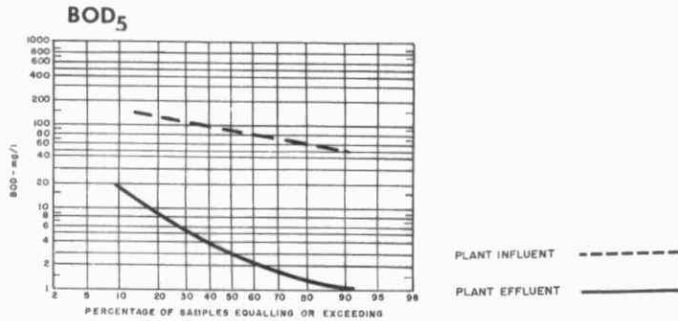
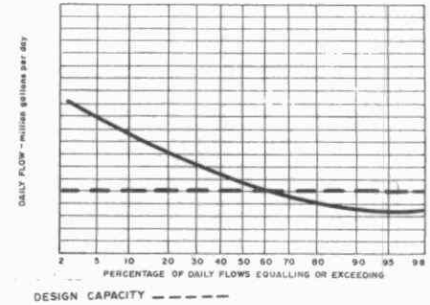
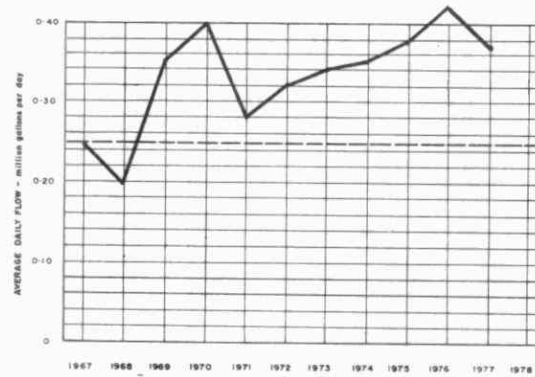
MARCH/76

PLANT PERFORMANCE SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	8.24	.26	.50	208	11	95	16	376	10	97	30	7.8	.9
FEB	9.43	.33	.65	155	11	93	14	355	13	96	340	8.9	1.0
MAR	15.21	.49	.70	98	9	91	14	134	12	91	19	4.6	.3
APR	12.77	.42	.51	106	6	94	13	321	5	98	40	7.1	1.2
MAY	9.34	.30	.41	120	2	98	11	218	10	95	19	6.8	.4
JUNE	9.61	.32	.39	210	41	80	16	329	18	95	30	13.2	5.5
JULY	10.10	.32	.48	118	3	97	12	221	10	95	21	6.0	.7
AUG	9.10	.29	.36	142	5	96	13	205	8	96	18	7.9	1.6
SEPT	11.10	.36	.64	123	3	97	13	143	7	95	15	3.8	.7
OCT	11.90	.38	.52	127	2	98	14	214	2	99	25	6.4	.5
NOV	15.40	.51	.66	179	13	92	25	518	10	98	78	11.0	3.0
DEC	13.50	.43	.70	52	6	88	6	80	9	88	9	3.3	.7
TOTAL	135.70	-	-	-	-	-	180	-	-	-	378	-	-
AVG.		.37	MAXIMUM .70	142	9	93	15	288	9	96	31	7.5	1.4
No. of Samples	-	-	-	20	21	-	-	20	21	-	-	20	21

WESTMINSTER TWP. WPCP

PROCESS DATA FLOWS

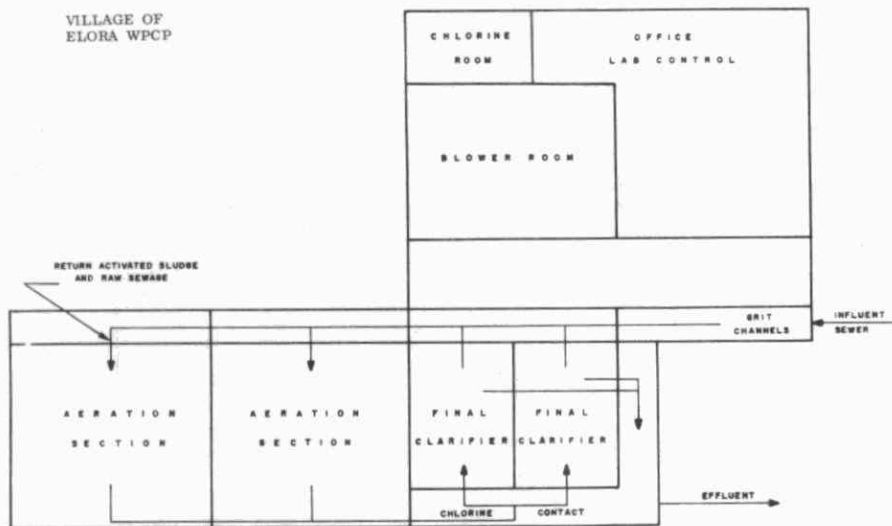


TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN				7100	.030		97	1.1	72	30			177
FEB				6400	.031		68	1.0	64				
MAR				4100	.050		56	1.0	62				
APR				5800	.030		54	.9	63	23			139
MAY		107	1.1	6800	.021		62	.7	59	32			191
JUNE		278	2.8	6800	.040		60			27			158
JULY		339	3.4	6700	.022		60	1.0	57	32			186
AUG		352	3.8	6900	.023		46	1.1	58	31			185
SEPT		329	3.0	5900	.029		50	.8	58	48			284
OCT		304	2.6	6400	.029		58	.7	59	49			293
NOV		366	2.4	4900	.004		57	.9	61				
DEC		9	.6	4000	.022		61	.6	64	38			222
TOTAL		2084	-	-	-	-	729	-	-	310	-	-	1835
AVG.	cu ft/mil gal		2.7	6000	.027			.8	61				

REGION 2
West Central

VILLAGE OF
ELORA WPCP



DESIGN DATA

PROJECT Village of Elora WPCP

PROJECT NO. 2-0125-62
TREATMENT Extended Aeration
DESIGN FLOW 0,083 mgd
DESIGN POPULATION 1,000
BOD - Raw Sewage 210 mg/l
SS - Raw Sewage 250 mg/l

PRETREATMENT

Screening (at pumping station)

- Two coarse bar screens

Pumps - Robert Morse

- Two 300 gpm (electric) @ 47' tdn

Grit Removal

Type: Grit channels
Size: Two 10' x 2'

SECONDARY TREATMENT

Aeration Tanks

Type: Single-pass
Size: Two 32' x 20' x 11' (14,100 cu ft
or 87,800 gal)
Retention: 25.4 hr

Air Supply

Type: Sutorbilt; variable speed pulley
Size: Two 183-370 cfm each

Diffusers

Type: Spargers
Size: 16 per tank @ 2' centres

Secondary Sedimentation

Type: Walker Process
Size: Two 26' x 6' x 7'9" deep (7,500 gal)
Retention: 4.3 hr
Loading: Surface, 266 gal/ft²/day
Weir, 1,500 gal/ft/day

CHLORINATION

Type: Wallace & Tiernan V-100

Chlorine Contact Chamber

Size: 13' x 5' x 6' deep (2,180 gal)
Retention: 37.7 min

OUTFALL

- 12" dia pipe to Grand River

SLUDGE HANDLING

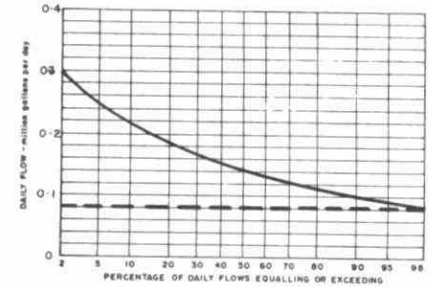
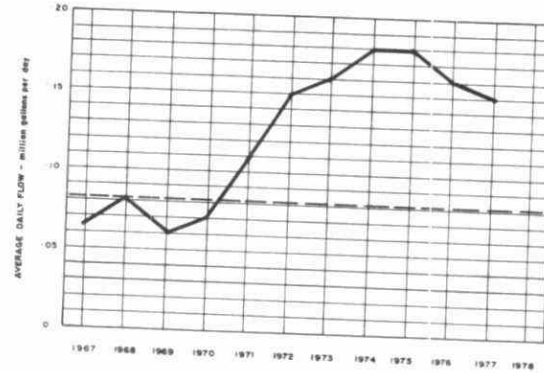
Type: Thickening tank
Size: 27' x 20' 8" x 11' 9" (avg)
(6,750 cu ft or 42,000 gal)

PLANT PERFORMANCE SEWAGE

ELORA WPCP

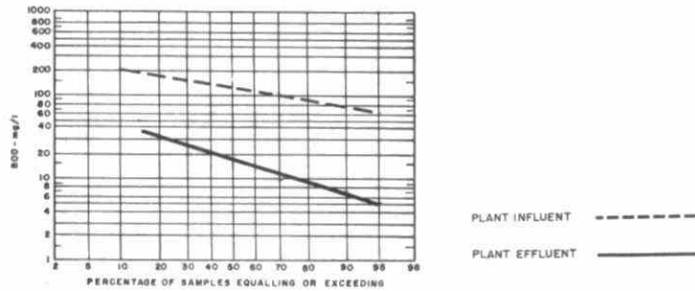
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS		
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	%	INFLUENT	EFFLUENT	REDUCTION	%	INFLUENT	EFFLUENT	
	million gallons	mil. gal	mgd	mg/l	mg/l	10 ³ pounds		mg/l	mg/l	10 ³ pounds		mg/l P	mg/l P	
JAN	N/A			155	9	94		210	28	85		12.0	2.1	
FEB	N/A			145	18	88		204	38	83		8.2	2.3	
MAR	N/A			106	15	86		167	9	95		10.0	1.0	
APR	N/A			150	14	91		147	31	79		10.0	1.8	
MAY	N/A			120	15	88		172	47	73		9.8	4.2	
JUNE	4.10	.14	.18	140	17	88	5.0	144	57	60	6.8	11.0	2.3	
JULY	5.02	.16	.27	95	30	63	3.3	72	116		1.8	7.0	4.2	
AUG	N/A			135	12	91		153	24	84		8.0	7.3	
SEPT	N/A			230	145	37		155	115	26		8.3	6.3	
OCT	N/A			85	9	89		195	26	87		10.0	.9	
NOV	N/A													
DEC	N/A													
TOTAL		-	-	-	-	-	-	-	-	-	-	-	-	-
AVG.		.15	.39	136	28	79	4.9	162	49	70	5.2	9.5	2.6	
No. of Samples		-	-	19	19	-	-	67	212	-	-	19	19	

PROCESS DATA FLOWS

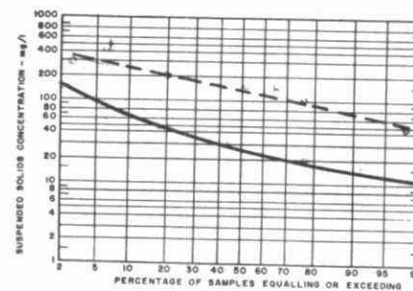


DESIGN CAPACITY - - - - -

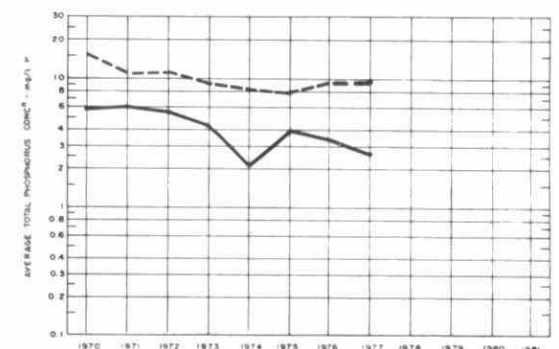
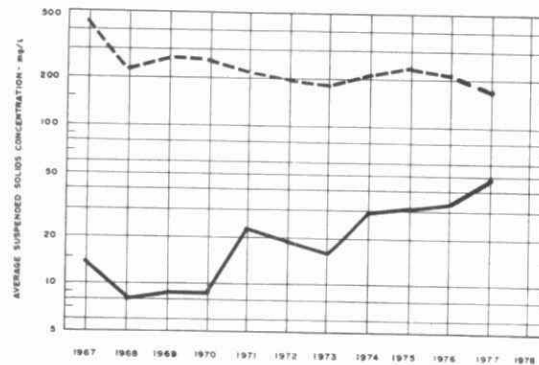
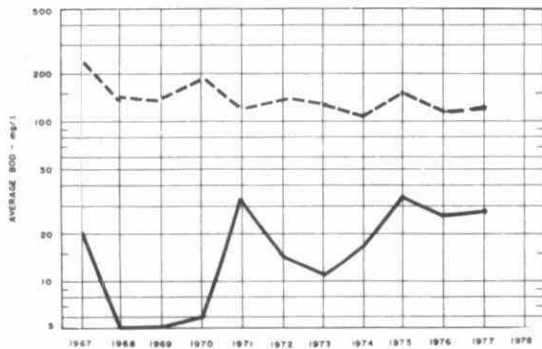
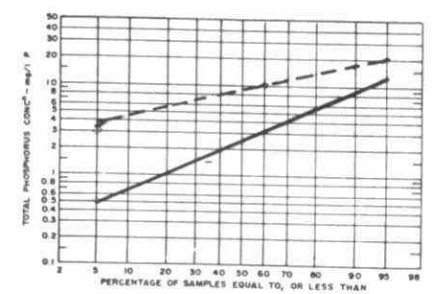
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	CL ₂ USED	AVG. DOSAGE	MLSS CONC.	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL. SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL. SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ lb BOD	10 gallons	mg/l	%	10 5 gallons	mg/l	%	cubic yards
JAN		211		3700						20			121
FEB	2	189		4300						12			73
MAR		241	3.0	2900		2.2				8			49
APR	2	254	5.7	2700		1.8				8			49
MAY	6	278	6.8	2400		4.7				110			170
JUNE	6	269	6.6	2000	.11	3.1							
JULY	6	224	4.5	1400	.13	4.8							
AUG	4	194	3.7	2000		5.9							
SEPT	3	194	3.0	1900						12			73
OCT	10	246		2300									
NOV	8	176		2100						12			73
DEC	8	188		1900									
TOTAL	55	2664	-	-	-	-				182	-	-	608
AVG.	1.0 <small>cu. ft./ft³ per</small>	222	4.4	2500	.12	3.8				26			51

DESIGN DATA

PROJECT Village of Grand
Valley WPCP

PROJECT NO. 1-0018-66

DESIGN FLOW 0.15 MGD

RAW SEWAGE PUMPING:

2, FLYGT CP100 Size: 370 IGPM at 27' TDH

GRIT CHANNELS:

2, each 43' x 2'w x 2' swd
Volume (each) 1073 I.G. Detention: 12 min.
Bar screens in GRIT chamber

OXIDATION DITCH:

Length 159' Design water level 4.5'
Volume: 130,000 I.G. Detention: 24 hours
Rotor Type: Pumps and Softners
Size: 27.5' dia. x 10' length
Motor: 7½ HP 1750 rpm

CLARIFIER:

18' dia. x 10.25' swd
Volume: 16,280 I.G. Detention: 3.0 hours
Collector mechanism type 'DORR-OLIVER-LONG'

SLUDGE PUMPS:

2 Type: CRANE DEMING
Size - 150 USGPM at 11' TDH

SLUDGE HOLDING TANK:

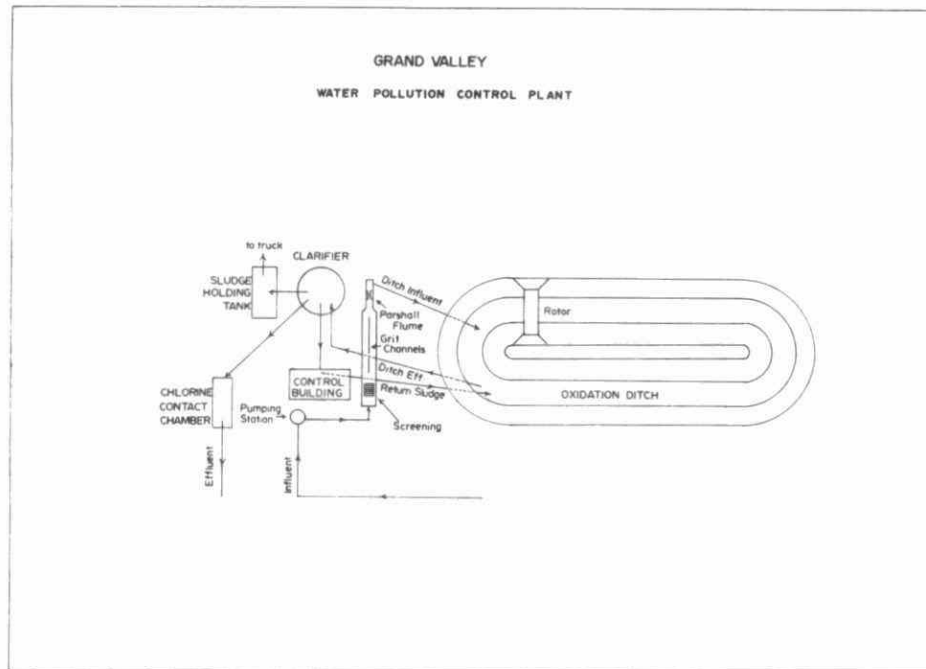
12' x 8' x 9.5' swd
Volume: 5242 IG Detention: 58 min.

CHLORINE CONTACT CHAMBER:

19' x 6' x 5' swd (5-passes)
Volume: (total) 2691 I.G. Detention: 30 min.

CHLORINATOR:

BIF Hypochlorinator
Capacity 11 USGPD at 125 psi

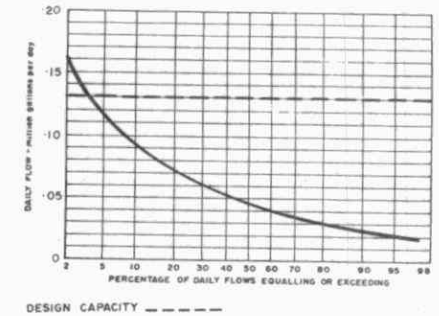
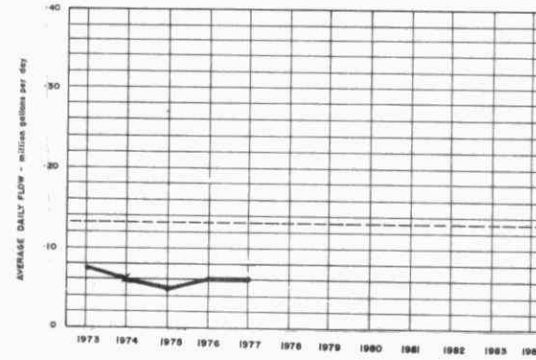


PLANT PERFORMANCE SEWAGE

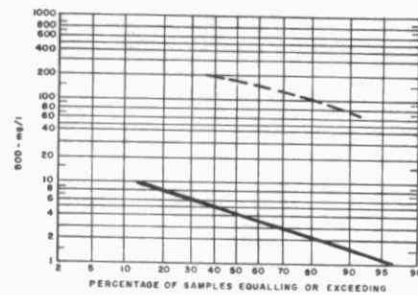
GRAND VALLEY WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	.84	.03	.03	215	8	96	1.7	204	15	93	1.6	15.0	1.6
FEB	.76	.03	.04	208	5	98	1.5	224	13	94	1.6	13.0	1.3
MAR	4.29	.14	.61	80	6	93	3.2	138	33	76	4.5	1.5	1.3
APR	3.03	.10	.18	100	3	97	2.9	141	9	94	4.0	6.3	1.5
MAY	1.49	.05	.09	205	3	97	3.0	199	6	97	2.9	11.0	3.4
JUNE	1.13	.04	.05	245	3	99	2.7	234	4	98	2.6	13.0	2.7
JULY	1.31	.04	.05	150	3	98	1.9	258	5	98	3.3	11.1	3.3
AUG	1.62	.05	.15	180	2	99	2.9	249	5	98	4.0	7.7	3.2
SEPT	1.87	.06	.15	153	4	97	2.8	155	5	97	2.8	7.5	2.7
OCT	2.60	.09	.21	145	5	97	3.6	171	4	98	4.3	7.9	2.4
NOV	2.03	.07	.16	163	11	93	3.1	201	5	98	3.9	8.2	1.8
DEC	2.25	.07	.12	220	11			158	14	91	3.2	12.0	
TOTAL	23.22	-	-	-	-	-	-	-	-	-	43.9	-	-
AVG.	1.94	.06	MAXIMUM .61	167	5	85	3.1	199	10	95	3.6	8.4	2.4
No. of Samples	-	-	-	25	24	-	-	83	82	-	-	25	27

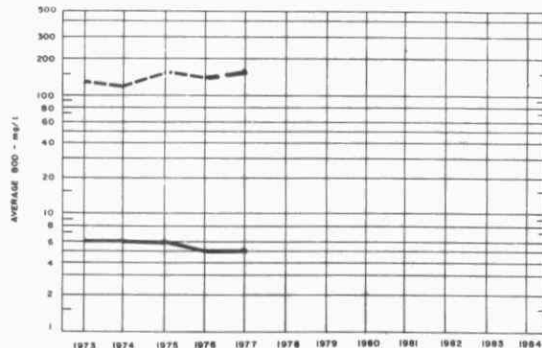
FLOWS



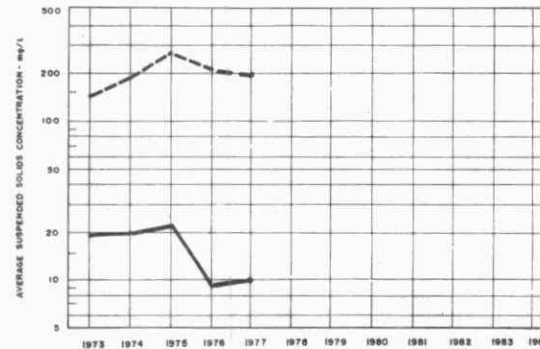
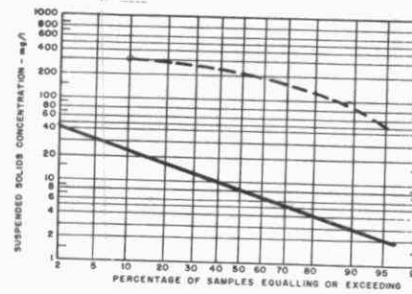
BOD₅



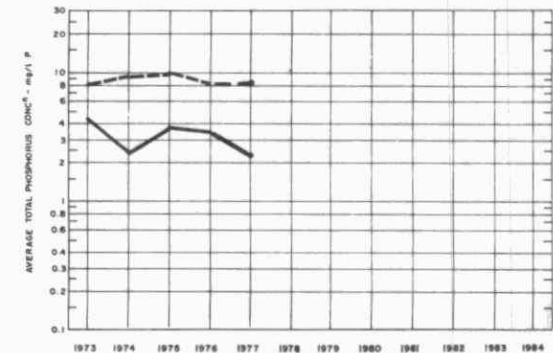
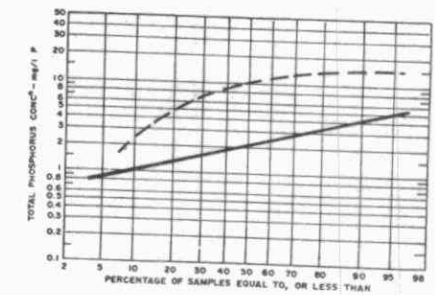
PLANT INFLUENT - - - - -
PLANT EFFLUENT —————



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAILED cubic yards
JAN		72	8.6	3800	.01		27	5000		23			136
FEB		55	9.1	4900	.01		35	5000		20			136
MAR		84	2.0	2800	.03		54	9000		34			204
APR		80	2.6	2100	.04		34	3000		34			196
MAY		78	5.2	1800	.04		57	2000		50			285
JUNE		78	6.9	1800	.04		39	2000		37			142
JULY		77	5.9	1800	.03		47	3000		24			143
AUG		75	4.6	2000	.04		53	2000		36			232
SEPT		79	4.2	1700	.04		40	3000		34			142
OCT		93	3.6	1300	.07		54	3000		48			286
NOV	35	91	4.5	1400	.06		52	3000		30			178
DEC		94	4.2	1500	.08		28	2000		24			144
TOTAL	35	956	-	-	-	-	520	-	-	394	-	-	2224
AVG.	1.5 ca. ft/mil gal	80	4.1	2200	.04		43	3500		33			185

DESIGN DATA

Project: Haldimand-Norfolk
(Cayuga) WPCP

Project No: 1-0043-66

DESIGN FLOW

200,000 gpd

GRIT REMOVAL

Type: Manually cleaned channels
Size: Two 18'6" x 1'6" x 2'6" deep

AERATION TANK

Type: Oxidation ditch with one Pumps
& Softeners Ltd. rotor
Size: 23,400 cu. ft. or 146,000 gal.
Detention: 65 hr
Flow Velocity: 1 fps (min)

FINAL CLARIFIER

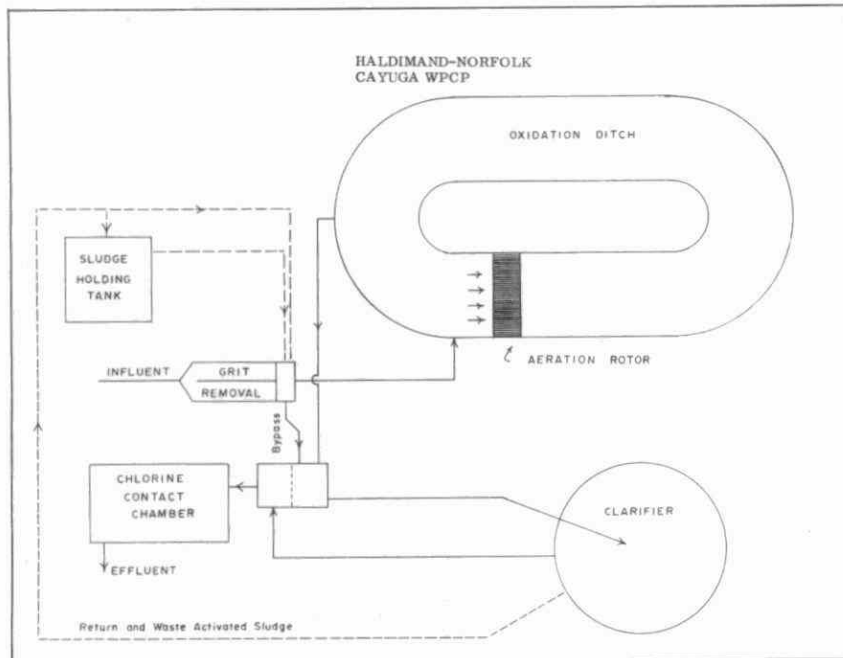
Type: Dorr-Oliver
Size: One 24' dia x 12' swd
(33,800 gal) overflow rate
at design capacity 440 gal/
ft²/day

CHLORINATION

Type: Gas
Size: 50 lb/day

CONTACT TANK

Size: 4750 gal
Detention: 34 min.

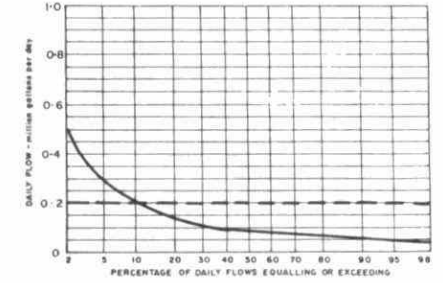
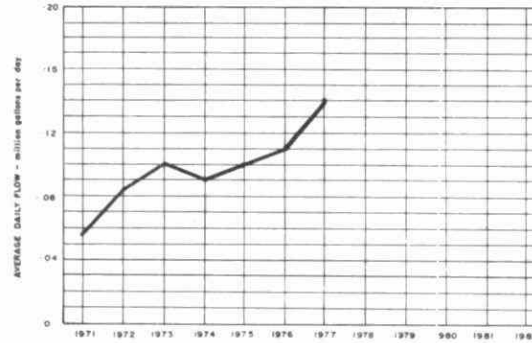


PLANT PERFORMANCE SEWAGE

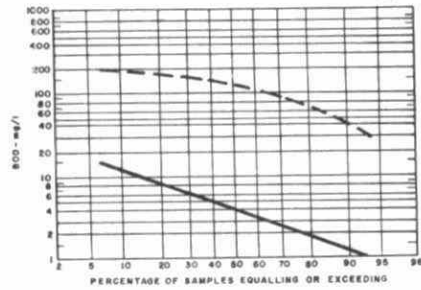
HALDIMAND (CAYUGA) WPCP

MONTH	FLOW'S			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	2.58	.08	.11	120	3	98	3.0	146	6	96	3.6	7.5	
FEB	4.29	.16	.28	155	3	98	6.5	152	6	96	6.3	5.0	.6
MAR	7.47	.24	.49	47	17	64	2.2	71	45	37	1.9	3.6	1.1
APR	5.22	.18	.42	130	4	97	6.6	109	5	95	5.4	5.8	.2
MAY	2.46	.08	.14	240	1	100	5.9	388	5	99	9.4	14.0	.6
JUNE	2.60	.09	.13										
JULY	2.58	.08	.24	85	2	98	2.1	90	5	94	2.2	7.2	.2
AUG	2.54	.08	.14	135	2	99	3.4	137	10	93	3.2	8.6	.4
SEPT	5.69	.19	.89										
OCT	3.41	.11	.32	115	3	97	3.8	163	7	96	5.3	7.9	.7
NOV	3.42	.11	.25	135	3	98	4.5	165	10	94	5.3	7.2	.4
DEC	8.06	.26	.66										
TOTAL	50.32	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	4.19	.14	MAXIMUM .89	123	5	96	4.9	151	10	93	5.9	7.2	.6
No. of Samples	-	-	-	13	13	-	-	13	13	-	-	13	12

PROCESS DATA FLOWS

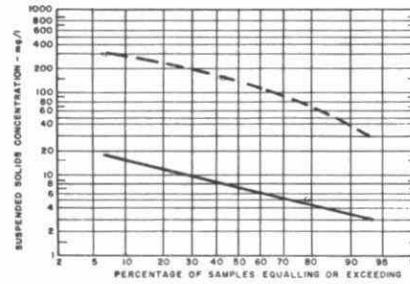


BOD₅

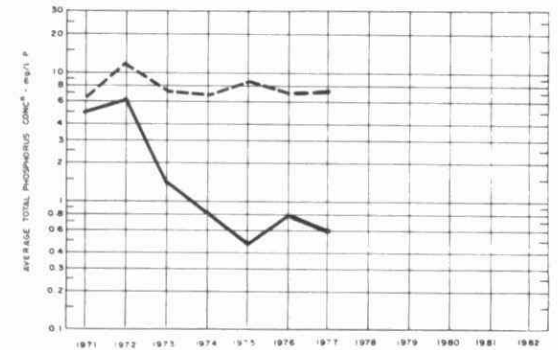
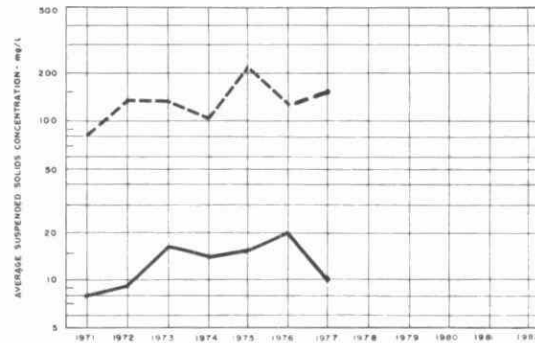
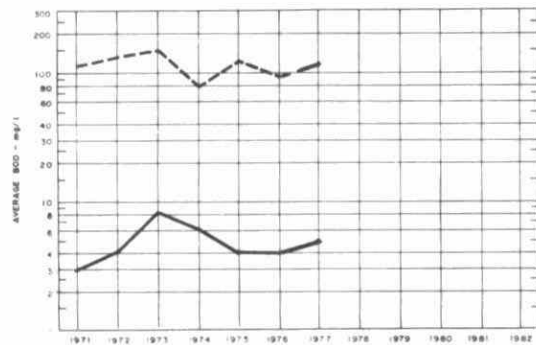
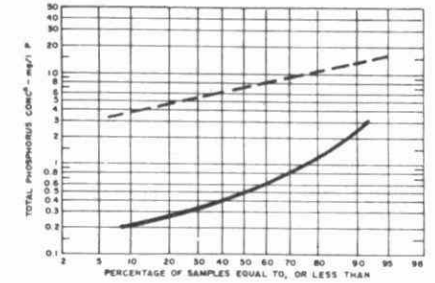


PLANT INFLUENT - - - - -
PLANT EFFLUENT —————

Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AMOUNT HAULED cubic yards			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb 800	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %		QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %
JAN	2	169	6.5										
FEB	2	175	4.1										
MAR	2	226	3.0										
APR	3	197	3.8										
MAY	2	157	6.4						6.1			36	
JUNE	3	181	7.0										
JULY	3	184	7.1										
AUG	2	174	6.9										
SEPT	4	229	4.0										
OCT	2	181	5.3										
NOV	2	170	5.0				83.0						
DEC	3	283	3.5										
TOTAL	30	2326	-	-	-	-	83.0	-	-	6.1	-	-	36
AVG.	.6 cu. ft/min-gal	194	4.6										

DESIGN DATA

PROJECT Town of Paris WPCP

PROJECT NO. 2-0C34-59

TREATMENT Extended Aeration

DESIGN FLOW 0.50 mgd

DESIGN POPULATION 18,600

BOD - Raw Sewage 200 mg/l

SS - Raw Sewage 170 mg/l

PRETREATMENT

Grit Removal

Type: Channel; manually cleaned
Size: Two 25 X 2½ X 2½'

Comminution

Type: Jones & Atwood (1)

RAW SEWAGE PUMP

Type: Worthington
Size: Two 335 gpm @ 12' tdh

SECONDARY TREATMENT

Aeration Tanks

Type: Mechanical; single-pass
Size: Two 96 X 32 X 10' (372,000 gal)
Retention: 17.9 hr

Aerators

- Ames Crosta (6)

Secondary Sedimentation

Type: Dorr
Size: Two 36 X 36 X 9' swd
(145,000 gal)
Retention: 3.5 hr
Loading: Surface, 193 gal/ft²/day
Weir, 1736 gal/ft/day

CHLORINATION

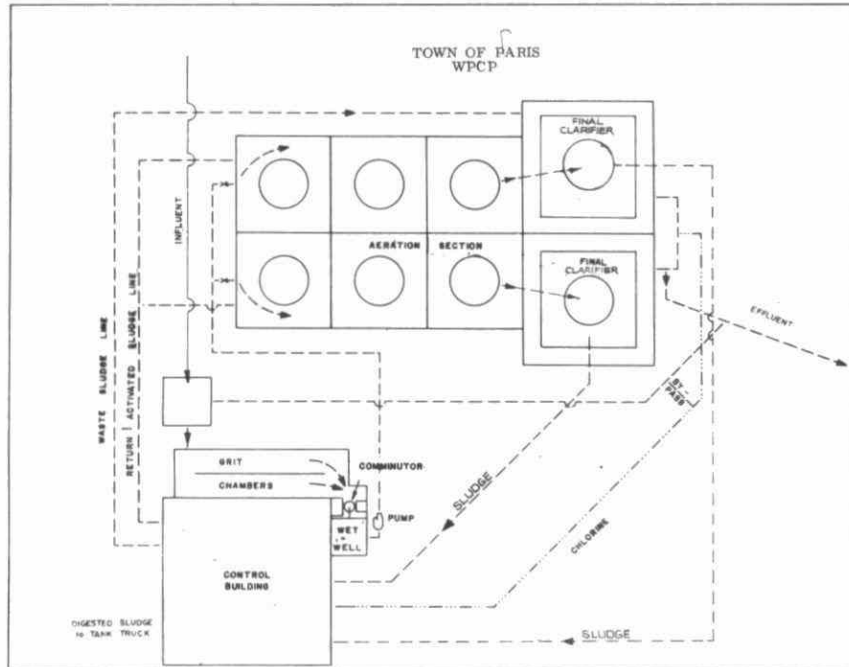
Type: W & T
Size: One 400 lb/day

Chlorine Contact Chamber

- in outfall

OUTFALL

- to Grand River

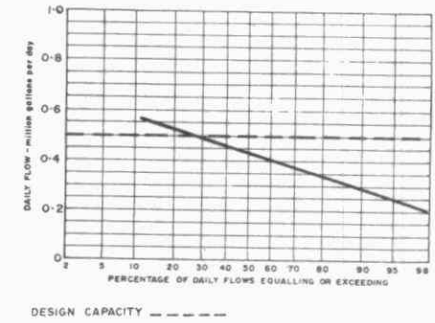
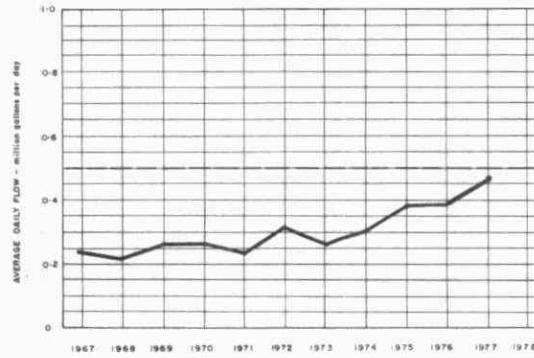


PLANT PERFORMANCE SEWAGE

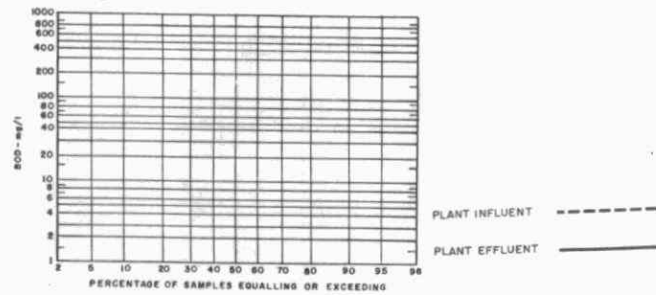
PARIS WPCP

PROCESS DATA FLOWS

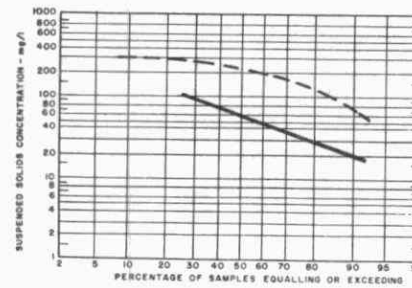
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	16.43	.38	.52										
FEB	16.22	.43	.57										
MAR	16.41	.60	1.12										
APR	16.14	.53	.72										
MAY	14.40	.46	.58	125	16	87	15.7					5.0	1.8
JUNE	13.91	.46	.56	155	29	81	17.5	290	64	78	31.4	5.0	2.0
JULY	10.97	.35	.62										
AUG	12.03	.39	.58	250	33	87	26.1	191	64	66	15.3		3.0
SEPT	12.42	.41	.66										
OCT	14.33	.46	.61	155	56	63	14.2	161	81	50	11.5		1.9
NOV	14.31	.48	.59					202	67	67	19.3		2.3
DEC	13.40	.43	.60										
TOTAL	170.97	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	14.25	.47	MAXIMUM 1.12	171	34	80	19.5	205	68	67	19.5	5.0	2.3
No. of Samples	-	-	-	4	4	-	-	13	13	-	-	2	14



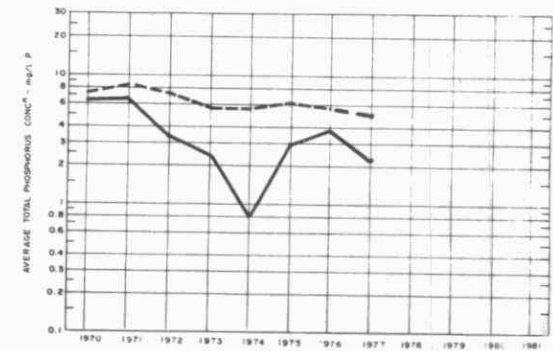
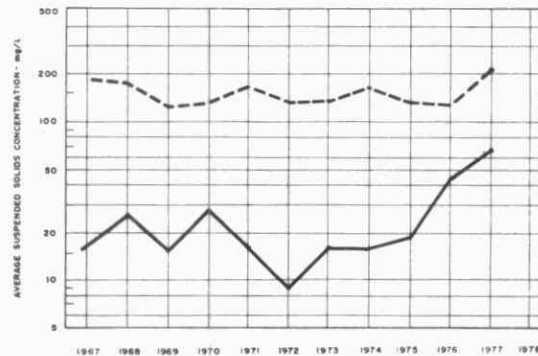
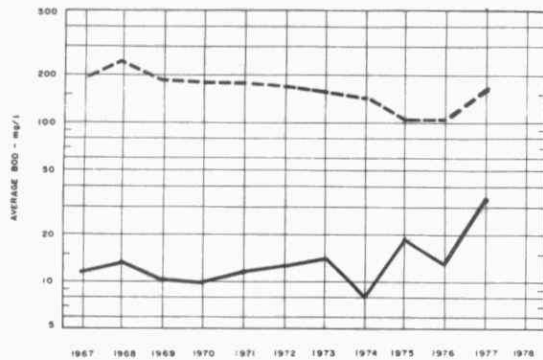
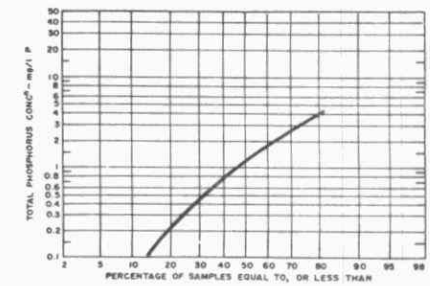
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft lb BOG	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	9	155	.9										
FEB	12	140	.9										
MAR	11	155	.9										
APR	12	194	1.2										
MAY	15	158	1.4										
JUNE	12	229	1.6										
JULY	12	236	2.2										
AUG	12	252	2.1										
SEPT	6	252	2.0										
OCT	12	276	1.9						50				295
NOV	15	248	1.7	2900									
DEC	12	248	1.9										
TOTAL	140	2543	-	-	-	-	-	-	50	-	-	-	295
AVG.	0.8 <small>cu. ft/mi. gal</small>	212	1.5	2900									

DESIGN DATA

PROJECT: Wellesley Twp. WPCP

PROJECT NO. 1-0178-68

TREATMENT: Contact Stabilization plant
operated as
Extended Aeration

DESIGN FLOW: 0.11 mgd

BOD - Raw Sewage 233 lb/day
- Removal 93%

SS - Raw Sewage 274 lb/day
- Removal 94%

RAW SEWAGE PUMPS
Size: Two, each 320 USgpm @ 27' TDH

GRIT REMOVAL FACILITIES
None

COMMINUTOR
Type: One, Worthington 12c4
Size: "A"
(bar screen in bypass channel)

BIOLOGICAL TREATMENT

CONTACT TANK
Volume: 12,200 I.G.
Retention: 2.7 hr

REAERATION
Volume: 25,400 I.G.
Retention: 5.5 hr

BLOWERS

Type: Three, Roots 67RA1
Size: each 1530 rpm

CLARIFIER

Size: 23' dia. x 15.5' awd
Volume: 34,900 I.G.
Retention: 7.6 hr

AEROBIC DIGESTER 1

Volume: 44,900 I.G.

AEROBIC DIGESTER 2

Volume: 15,900 I.G.

SLUDGE HOLDING TANK

Volume: 6,700 I.G.

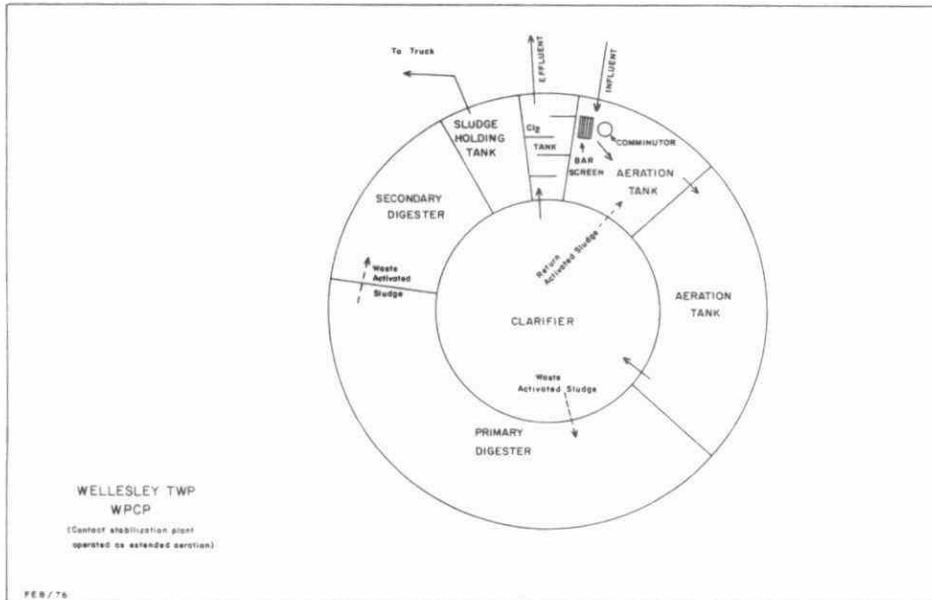
CHLORINE CONTACT CHAMBER

Volume: 4,890 I.G.

Retention: 1.1 hr

CHLORINATOR

Type: One F and P

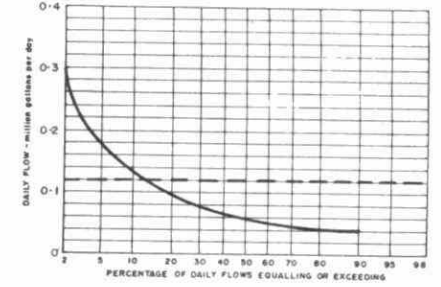
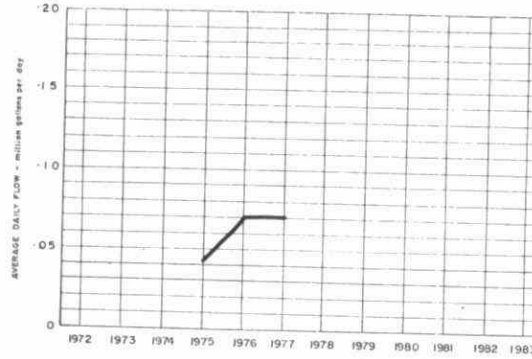


PLANT PERFORMANCE

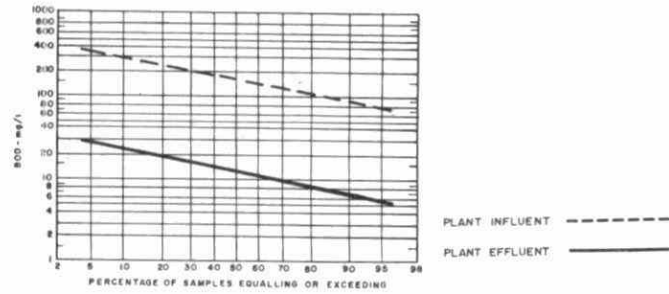
WELLESLEY TWP. (WELLESLEY) WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	1.20	.04	.08	260	5	98	4.8	309	33	89	5.2	13.0	.5
FEB	1.73	.06	.81										
MAR	4.63	.15	.40										
APR	2.58	.09	.15										
MAY	1.66	.05	.10	205	9	96	3.2	221	20	91	3.3	9.7	.8
JUNE	1.71	.06	.10	159	15	91	2.5	243	26	89	3.8	9.0	.8
JULY	1.34	.04	.06	218				245				9.3	
AUG	1.69	.05	.15	227	15	93	3.6	248	67	73	3.0	9.5	
SEPT	2.76	.09	.21	152	19	88	3.7	164	73	55	2.5	6.2	1.9
OCT	2.79	.09	.21	126	19	85	3.2	158	22	86	4.0	5.8	.9
NOV	2.18	.07	.32	200	2	99	5.1	100	15	85	2.2	5.2	1.2
DEC	1.92	.06	.23	130	11	92	3.7	114	27	76	2.7	5.6	3.0
TOTAL	26.19	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	2.18	.07	.32	183	14	92	3.7	188	40	79	3.2	8.1	2.1
No. of Samples	-	-	-	23	25	-	-	45	49	-	-	40	41

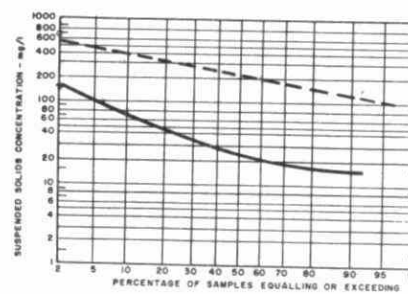
FLOWS



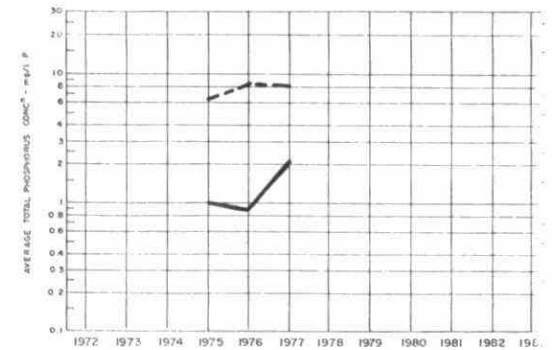
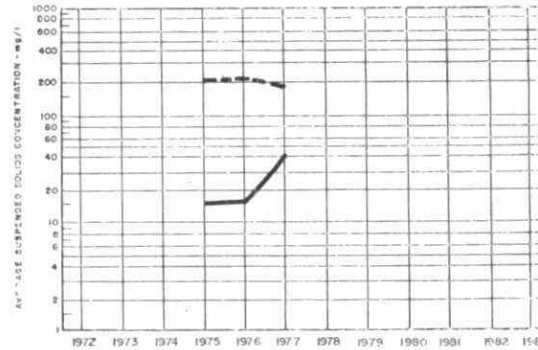
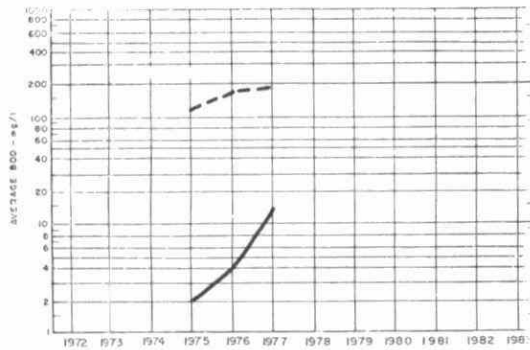
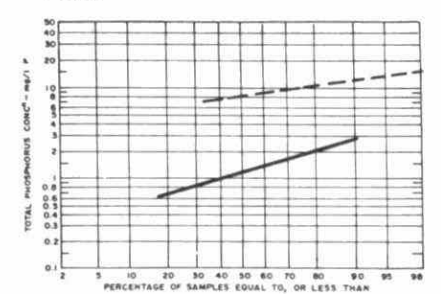
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	Cl ₂ USED	AVG. DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ / 1000	10 gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN		55	3.5	8700	.12					14			80
FEB		21	.5							53			312
MAR		45	1.3							41			240
APR		67	4.3							27			161
MAY		45	5.3							22			128
JUNE		99	7.4							14			80
AUG		74	4.4							42			248
SEPT		63	2.3	11300	.10					66			392
OCT		119	4.0	7900	.13					24			144
NOV		14	3.6	7500	.19					14			80
DEC		108	5.4	5800	.19								
TOTAL		799	-	-	-	-		-	-	317	-	-	1865
AVG.	cu. ft/mil gal	67	2.6	8200	.15								

DESIGN DATA

PROJECT: Wilmot Twp (Baden) WPCP

PROJECT NO. 1-0036-66

TREATMENT: Extended Aeration

DESIGN FLOW: 0.203 MGD

BOD - Raw Sewage - 493 lb/day

SS - Raw Sewage - 620 lb/day

PRETREATMENT

RAW SEWAGE PUMPS

Type: Two, Crane STF centrifugal
Size: each 480 gpm @ 38' TDH

GRIT CHANNELS

Size: Two, each 1.5' x 19' x 2.2'
Volume: (each) 390 I.G.
Retention (one): 2.8 min

COMMINUTOR

Type: Heligear HTMI
Size: 50 rpm

BIOLOGICAL TREATMENT

AERATION TANK

Volume: 222,000 I.G.
Retention: 26.2 hr

CLARIFIER

Size: 27' i.d. x 12.8' awd
Volume: 46,900 I.G.
Retention: 5.5 hr
Loading -
- Surface: 382/I.G./ft²/day
- Weir: 2484 I.G./ft/day

BLOWERS

Type: Three, Roots 76RA1

AEROBIC DIGESTER

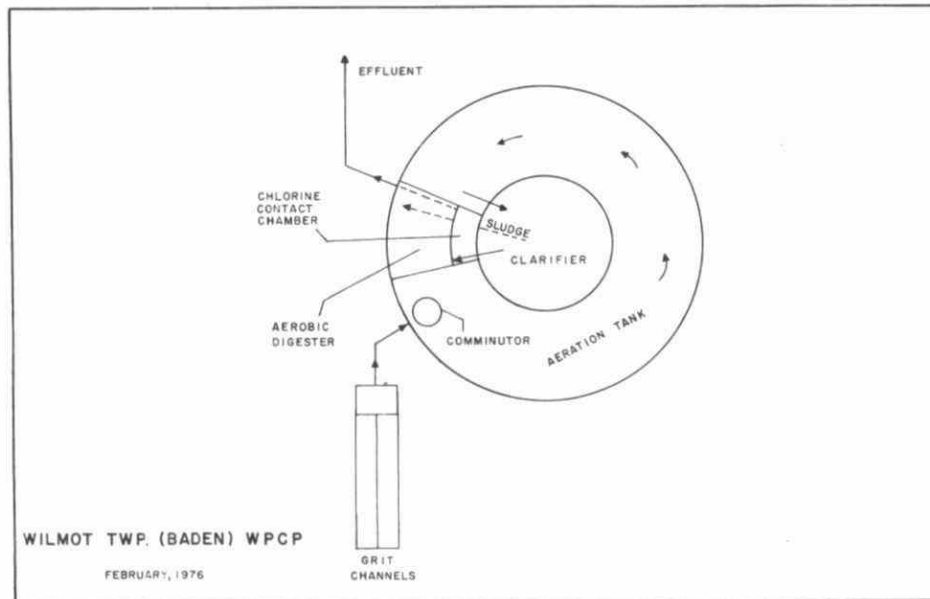
Volume: 19,000 I.G.

CHLORINE CONTACT CHAMBER

Volume: 4700 I.G.
Retention: 33 min

CHLORINATOR

Type: W and T v-800
Size: 50 lb/day

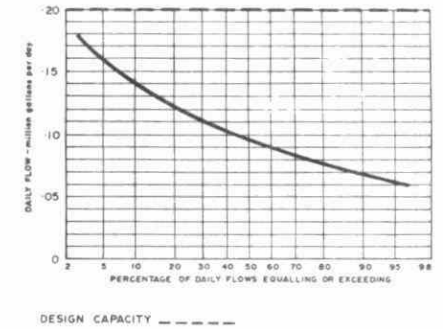
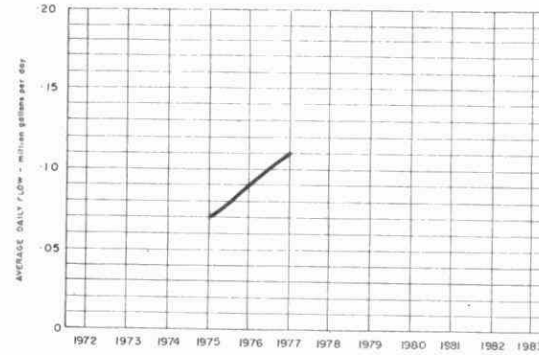


PLANT PERFORMANCE SEWAGE

WILMOT TWP. (BADEN) WPCP

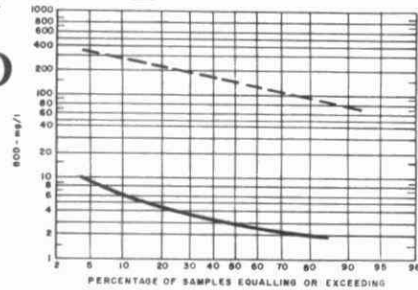
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT		
	million gallons	mil gal	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P	mg/l P		
JAN	2.63	.09	.13	295	3	99	7.7	153	10	93	3.8	11.0	.4
FEB	2.45	.09	.13	177	3	98	4.3	168	12	93	3.8	11.0	.8
MAR	3.63	.12	.26	158	2	98	5.7	122	12	90	4.0	7.7	.6
APR	3.01	.10	.21	135	4	97	3.9	119	7	94	3.4	9.6	.6
MAY	2.84	.09	.20	185	3	98	5.2	149	7	95	4.0	10.4	1.3
JUNE	3.17	.11	.16	200	3	99	6.2	132	8	94	3.9	10.8	1.1
JULY	2.79	.09	.15	108	8	93	2.8	122	8	93	3.2	4.6	1.9
AUG	2.70	.09	.10	200	2	99	5.3	146	6	96	3.8	11.0	.5
SEPT	3.86	.12	.22	158	4	97	5.9	118	5	96	4.4	6.4	.4
OCT	3.68	.12	.22	110	4	96	3.9	318	7	98	11.4	6.6	.6
NOV	3.46	.12	.16	190	4	98	6.4	153	14	91	4.8	11.3	.9
DEC	3.91	.13	.19	133	4	97	5.0	120	13	89	4.2	7.9	.7
TOTAL	38.13	-	-	-	-	-	63.7	-	-	-	54.5	-	-
AVG	3.18	.11	MAXIMUM .26	171	4	98	-	152	9	94	4.5	9.1	.9
No. of Samples	-	-	-	25	25	-	-	25	25	-	-	27	57

PROCESS DATA FLOWS



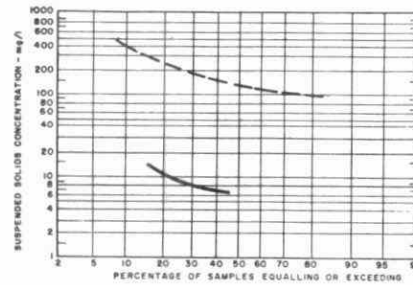
DESIGN CAPACITY -----

BIOCHEMICAL OXYGEN DEMAND

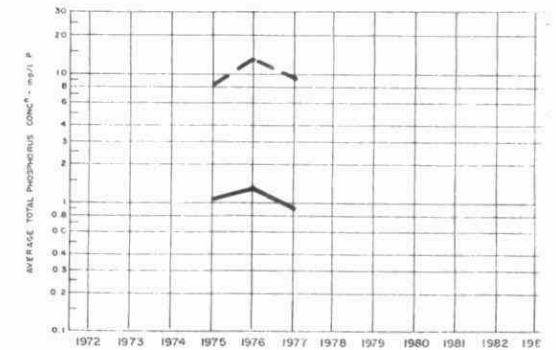
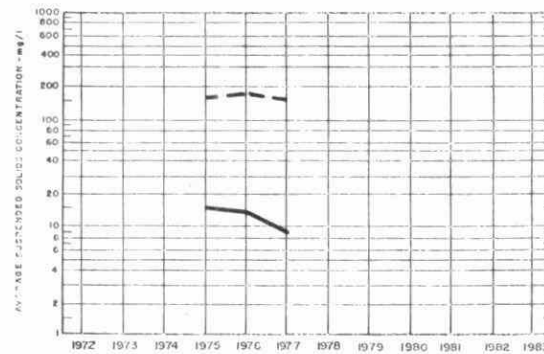
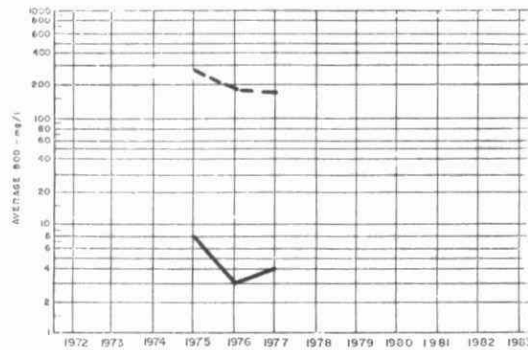
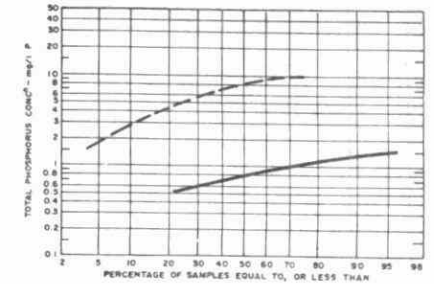


PLANT INFLUENT -----
PLANT EFFLUENT _____

SUSPENDED SOLIDS



PHOSPHORUS



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb 800	QUANTITY 3 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 5 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	4	86	3.3	10000	.01	1.8	28			28	22000	51	170
FEB	4	69	1.7	8600	.01	3.5	25	10000	54	33	18000	54	194
MAR	6	102	2.8	7100	.01	2.5	29	9000	56	19	22000	54	122
APR	4	171	5.7	7500	.01	3.4	19	8000	56	20	21000	54	122
MAY	4	77	2.7	8000	.01	3.3	21	8000	52	23	20000	55	139
JUNE	5	60	1.9	7200	.01	2.6	20	9000	53	25	19000	52	148
JULY	4	69	2.5	9000	.01		18	11000	47	12	15000	51	73
AUG	3	83	3.1	6500	.01		29	7000	48	33	22000	48	195
SEPT	5	89	2.3	7200	.01		24	7000	50	25	20000	47	148
OCT	4	102	2.8	4900	.01		26	15000	46	37	26000	47	219
NOV	4	92	2.7	7800	.01		29	10000	43	25	26000	46	146
DEC	5	89	2.3	7700	.01		29	25000		34	29000	50	195
TOTAL	52	1089	-	-	-	-	297	-	-	314	-	-	1871
AVG	1.4 cu. ft./mi gal	91	2.9	7600	.01	2.9	25	11000	51	26	22000	51	156

DESIGN DATA

Project	Woolwich Twp. (St. Jacobs) WPCP
Project No:	1-0063-67
Treatment:	Extended Aeration
Design Flow:	0.21 MGD

RAW SEWAGE PUMPING:
 Two, Type: FLYGT CP-3150
 Size: 600 USGPM at 24' TDH

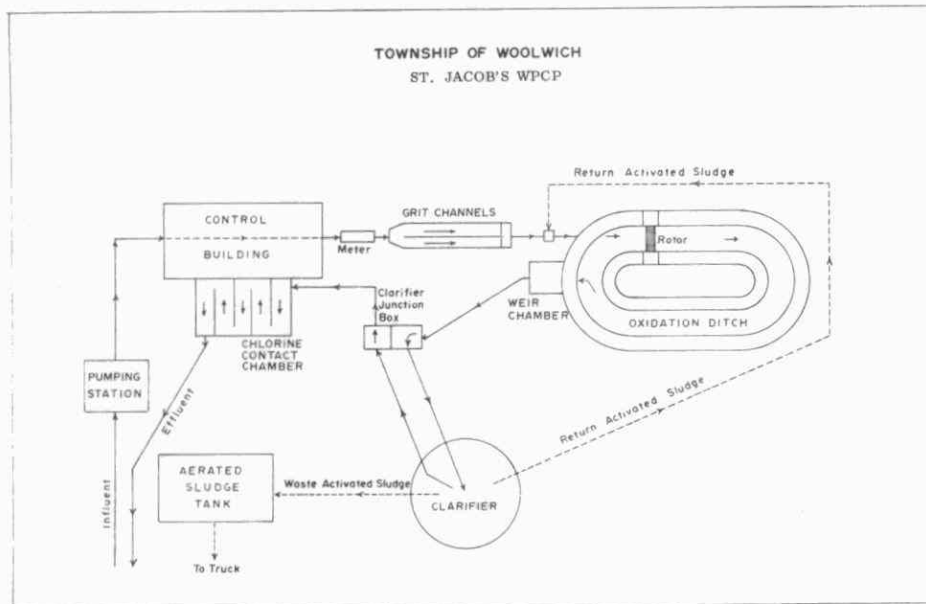
GRIT CHANNELS:
 Two, 19' x 1.6' x 2.2'
 Volume (each) 420 I. Gal.
 Detention: (each) 2.8 min.

OXIDATION DITCH:
 Volume: 200,000 I. Gal.
 WL Dept. 5' Detention: 22.8 hours

Rotor - Type: Pumps and Softners
 Size: 15' length

CLARIFIER:
 24' dia. x 9.5' swd
 Volume: 27,000 I. Gal.
 Detention: 3.1 hours
 Mechanism: DORR OLIVER LONG
 Overflow Rate: 465 gpd/sq. ft.

CHLORINE CONTACT CHAMBER:
 5 passes, each 12.3' x 2.5' x 5' awl
 Volume: 4,800 I. Gal.
 Detention: 33 min.



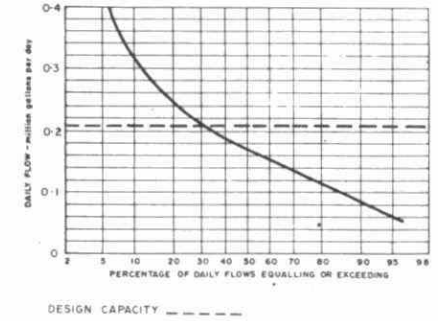
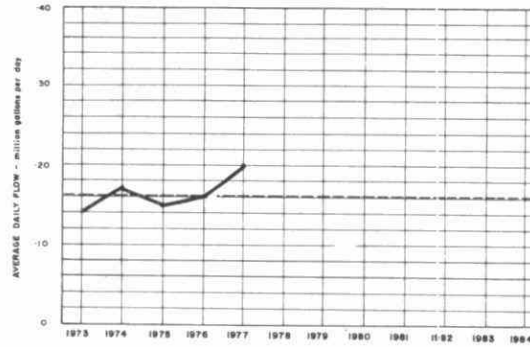
PLANT PERFORMANCE

SEWAGE

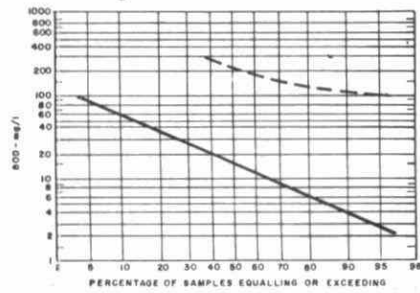
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mgd	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	REDUCTION 10 ³ pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	REDUCTION 10 ³ pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN	3.21	.10	.18	300	2	99	9.8	33	29	12	.1	5.6	.2
FEB	2.76	.10	.20										
MAR	8.17	.26	.98										
APR	6.99	.23	.42										
MAY	5.25	.17	.23	147	6	96	7.4	157	11	93	7.7	6.6	1.3
JUNE	4.89	.16	.24	158	13	92	7.1	186	10	95	8.6	8.7	1.3
JULY	5.45	.18	.34	393	24	94	20.1	179	9	95	9.2	7.3	2.0
AUG	4.70	.15	.25	285	17	94	12.6	340	9	97	15.6	9.7	2.2
SEPT	6.87	.23	.50	287	36	87	17.2	305	333			10.3	8.4
OCT	9.93	.32	.60	250	65	74	18.4	128	43	66	8.4	6.3	3.0
NOV	7.03	.23	.52	70	4	70	4.6	99	12	88	6.1	6.5	.7
DEC	8.00	.26	.43	180	7	96	13.8	96	16	83	6.4	6.9	1.1
TOTAL	73.25	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	6.10	.20	MAXIMUM .98	231	24	90	12.6	205	75	63	7.9	8.4	3.3
No. of Samples	-	-	-	24	23	-	-	47	48	-	-	42	39

WOOLWICH TWP. (ST. JACOBS) WPCP

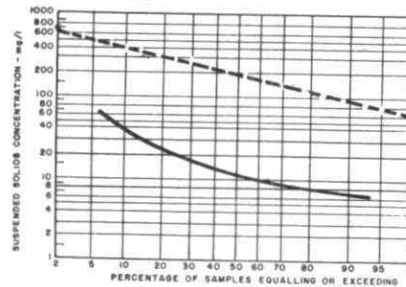
PROCESS DATA
FLOWS



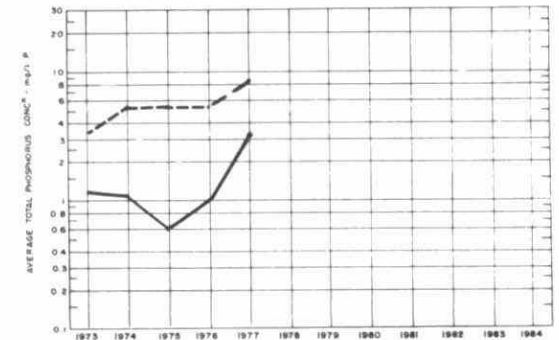
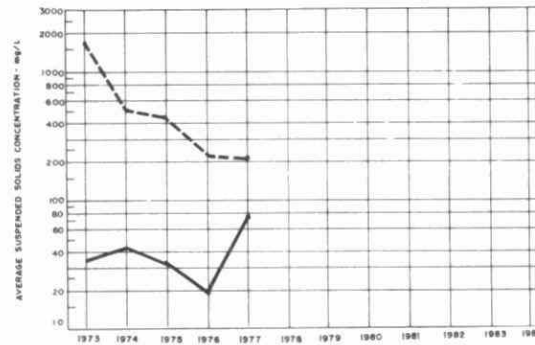
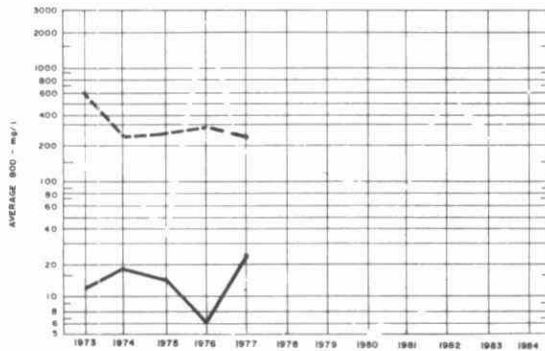
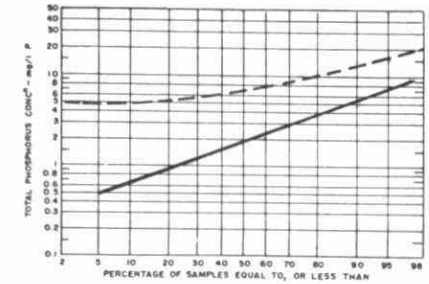
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED GALLONS 12.2%	AVG DOSAGE mg/L	MLSS CONC mg/L	F/M day ⁻¹	AIR USED 1000 ft ³ 16 BOD	QUANTITY SUSPENDED SOLIDS 10 gallons	SUSPENDED SOLIDS mg/L	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/L	VOL SOLIDS %	AMOUNT HAULED cubic yds
JAN	8	53	1.9						43			256	
FEB	3	66	2.4						72			432	
MAR	6	230	3.2						50			296	
APR	10	107	1.5						40			241	
MAY		129	2.5	5600	.02				26			160	
JUNE		115	2.4	5600	.02				20	19000		128	
JULY		142	2.6						41			241	
AUG		130	2.8	6100	.04				30	33000	51	176	
SEPT		158	2.3	5700	.06				50	24000	50	289	
OCT		187	1.8	1600	.26				14	27000	52	80	
NOV	2	128	2.2	6700	.01				15			87	
DEC		148	1.8	7500	.02				38			225	
TOTAL	29	1593	-	-	-	-	-	-	439	-	-	2611	
AVG.	0.4 cu ft/mi gal	133	2.5	5500	.06				36	26000	51	217	

REGION 3
Central

DESIGN DATA

ALLISTON (T) WPCP

PROJECT NO. 1-0074-67
 Design Capacity 0.77MGD
 Design BOD 155 mg/l

CHLORINE CONTACT CHAMBER:

5 passes, each pass 3.6' x 15.0' x 6.75' swd
 Volume (total) 11370 l. gal. Detn: 21 min.
 Chlorinator: W & T model A-741

PRETREATMENT

GRIT CHANNELS:

Two, each 2.5' x 25.0' x 2.5' swd
 Detn: 3.6 min at Des. MGD

COMMUNUTOR:

SALA 15" 37.5 Rpm powered by
 3/4 HP motor

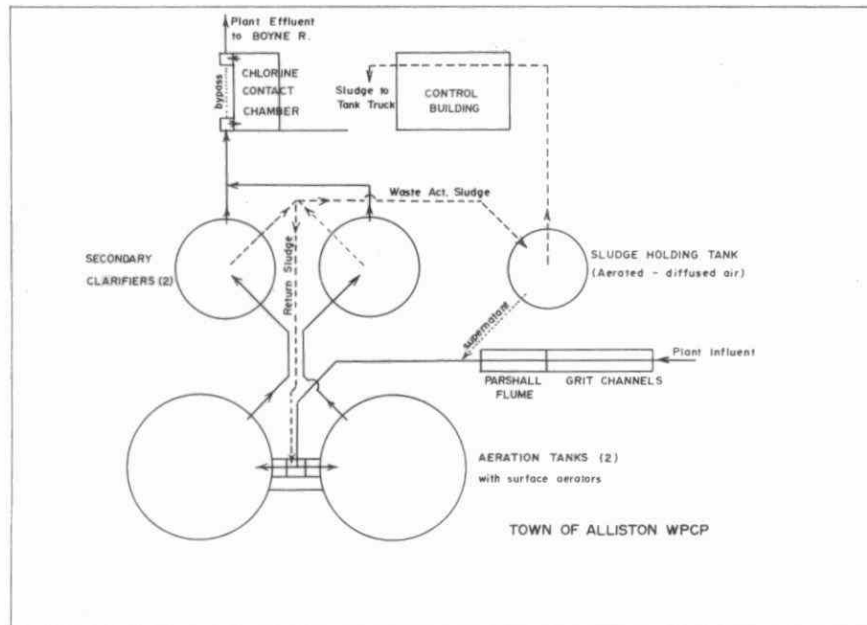
BAR SCREEN:

in one Grit channel

SLUDGE DISPOSAL

SLUDGE HOLDING TANK:

16.0' dia. x 16.0' swd
 Volume 21,200 l. gal.
Sludge pump: CARTER Series 800 plunger
 75 USGPM at 60' TDH powered by 3 HP motor.
Blower: SUTORBILT Mod. 3HV13



BIOLOGICAL TREATMENT

AERATION TANKS:

Two, 58.0' dia. x 14.0' swd
 Volume: (total) 461,390 l. gal. Detn: 14.4 hr.
 Aerators: Two AMES-CROSTA type - 60
 with 25 HP motor.

SECONDARY CLARIFIERS:

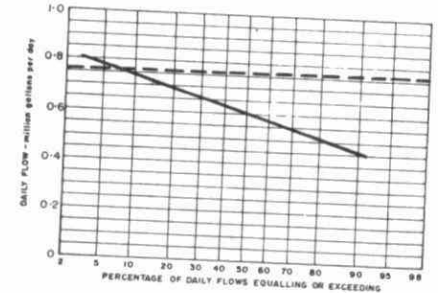
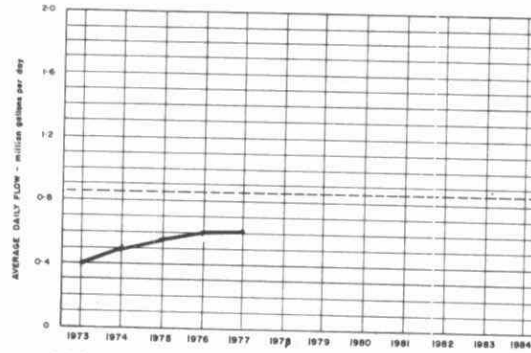
35.0' dia x 10.0' swd
 Volume (total) 120,000 l. gal. Detn: 3.7 hr.
 Overflow rate 450 gpd 1 ft².

PLANT PERFORMANCE SEWAGE

ALLISTON WPCP

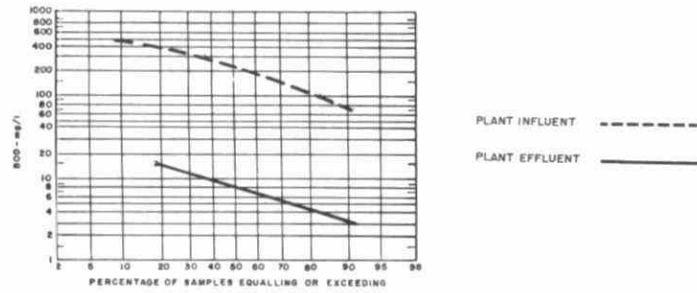
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	17.5	.56	.71										
FEB	17.1	.61	.77	195	10	95	32	206	16	92	33	10.0	
MAR	21.4	.69	.96	230	7	97	48	186	14	92	37	8.2	
APR	19.1	.64	.84	650	5	99	123	287	15	95	52	11.0	9.0
MAY	18.4	.59	.81	390	6	98	71	209	19	91	35	12.0	4.4
JUNE	18.1	.60	.83	70	4	94	12	203	15	93	34	4.4	
JULY	15.9	.51	.74	225	16	93	33	215	18	92	31	7.8	5.0
AUG	19.0	.61	1.07	115	10	91	20	224	15	93	40	8.0	5.8
SEPT	18.9	.63	.81	305	4	99	57	203	24	88	34	11.0	9.1
OCT	19.4	.63	.79	410	15	96	77	337	19	94	62	16.0	6.5
NOV	18.9	.63	.85	120	10	92	21	225	44	80	34	5.6	2.7
DEC	18.2	.59	.78					275	28	90	45		
TOTAL	221.9	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	18.5	.61	MAXIMUM 1.07	226	7	97	40	224	27	88	36	9.4	6.1
No. of Samples	-	-	-	10	10	-	-	50	83	-	-	10	7

PROCESS DATA FLOWS

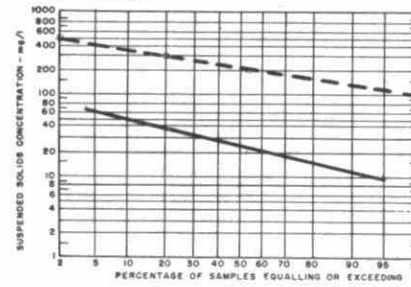


DESIGN CAPACITY -----

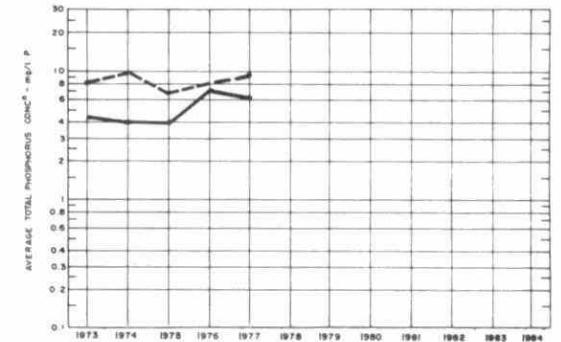
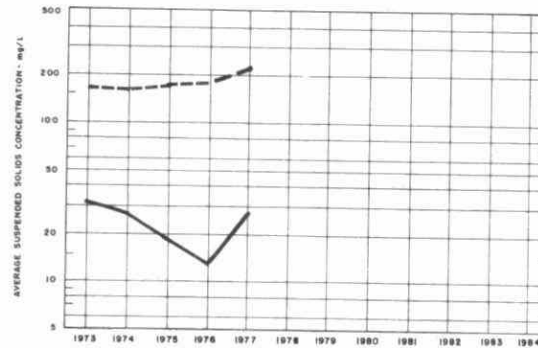
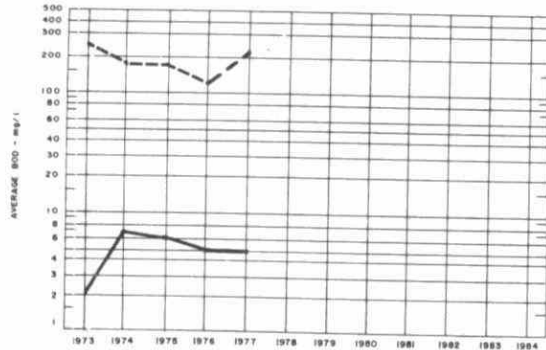
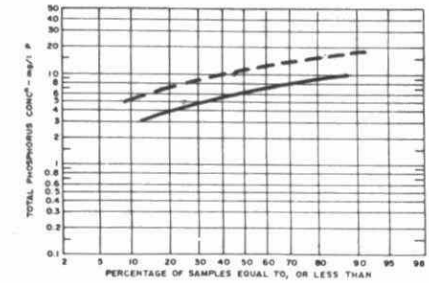
BOD₅



Susp. Solids

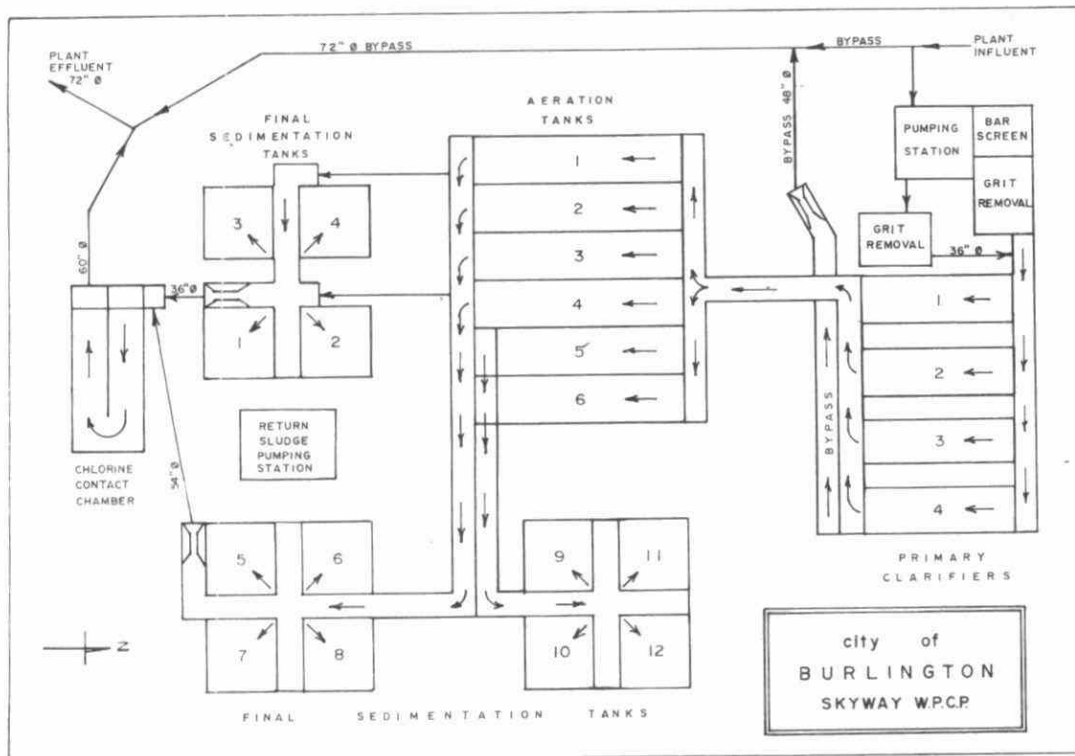


Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	CL ₂ USED pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ 15 BOD	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	AMOUNT HAULED cubic yards
JAN	12	717	4.1	2800			633	4000	80	77			459
FEB	27	703	4.1	2700	.09		517	4000	79	57	44000	79	340
MAR	54	728	3.4	4100	.08		399	6000	73	55	50000	72	323
APR	57	688	3.6	2700	.33		641	5000	75	69	33000		408
MAY	54	721	3.9	2500	.02		482	4000	77	54	33000	77	323
JUNE	69	738	4.1	2500	.04		374	5000	70	60	25000	68	357
JULY	38	632	4.0	2600	.09		348	5000	66	43	31000	62	255
AUG	75	661	3.5	2600	.06		652	6000	67	88	28000	63	522
SEPT	38	661	3.5	2700	.15		645	5000	67	80	35000	66	475
OCT	60	729	3.7	2600	.21		576	6000	69	89	32000	68	526
NOV	189	497	2.6	2500	.07		552	7000	77	89	30000	74	526
DEC	50	479	2.6	2500			421	6000	70	66	27000	70	394
TOTAL	723	7954	-	-	-	-	6240	-	-	827	-	-	4908
AVG.	3.2 cu. ft./month	663	2.6	2700	.11		520	5000	73	68	33000	70	409



DESIGN DATA

PROJECT Burlington Skyway
 PROJECT NO. 2-0'05-62
 TREATMENT Conventional activated sludge.
 DESIGN FLOW 8 MGD will be 20 MGD.
 RAW SEWAGE BOD 200 mg/l
 SS 200 mg/l

PRIMARY TREATMENT

Grit Removal

- Two tanks 20x4x14' SWD
- One Tank 20x25x14' SWD
- 2240+7000 = 29400 ft³

PRIMARY CLARIFIER

- Four tanks 170'x50'x12' SWD
- Total volume 408,000 ft³
- Total surface area 34,000 ft²

Surface settling rate
 @ avg. = 735 GPD/ft²
 @ peak = 1560 GPD/ft²

Detention Period
 @ avg. = 2.45 hours
 @ peak = 1.16 hrs.

SECONDARY TREATMENT

Aeration Tanks

- Six tanks 270'x27'x15' SWD
- Total volume 654,000 ft³
- Loading - 43 lb. BOD/1000 ft³/day
- Aeration Period: 4.9 hours
 excluding return sludge
- MLSS: 2000 mg/l
- F/M: 0.31
- Mean cell residence time
 3.3 days.

Aeration Equipment

One 4000 SCFM air blower
 Two 8000 SCFM air blowers
 One 10,000 SCFM air blower
 Fine bubble diffusers "Flexofuser"
 type, supplying 26,000 SCFM
 to the plant.

Final Sedimentation Tanks

- Twelve tanks 60'x60'x12' SWD
- Surface Loading:
 @ avg. flow 462 GPD/ft²
 @ max. flow 924 GPD/ft²
- Weir Loading:
 @ avg. flow 8700 GPD/Lin. Ft.
 @ max. flow 17,400 GPD/Lin. Ft.
- Detention Time:
 @ avg. flow 3.94 hours
 @ min. flow 1.97 hours

Return Sludge Pumping

- 3 pumps @ 3 MGD (ea.)
- 3 pumps @ 2.5 MGD (ea.)

Installed capacity 113% return sludge
 firm capacity 75% return sludge.

Activated Sludge Wasting

- One constant speed centrifugal
 pump plus one identical standby
 350 (U.S.) GPM.

Plant Flow Metering

- One 72" parshall flume for 8 final
 clarifiers 1.4 to 55 MGD
- One 24" parshall flume for 4 final
 clarifiers 0.23 to 17.8 MGD
- One 60" parshall flume for bypass
 0.86 to 46.5 MGD.

Sludge Treatment

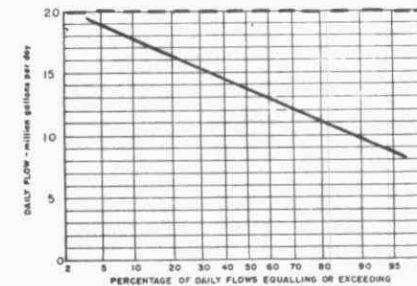
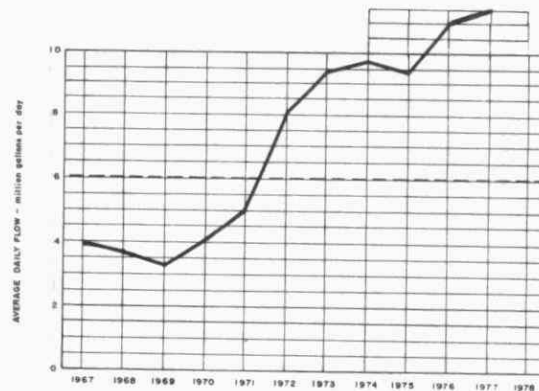
- Three anaerobic digestion tanks
- Waste activated sludge
 thickening equipment
- Digested sludge dewatering equipment.

PLANT PERFORMANCE SEWAGE

BURLINGTON SKYWAY WPCP

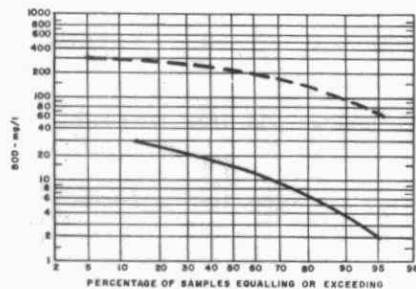
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	ml. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	357	12	15	170	9	95	575	488	9	98	1711	11.0	1.1
FEB	311	11	15	175	9	95	516	260	13	95	768	7.8	0.4
MAR	463	15	24	75	6	92	320	207	12	94	904	5.4	0.3
APR	475	16	23	150	8	95	675	329	17	95	1482	6.9	0.6
MAY	393	13	17	235	15	94	864	462	11	98	1772	10.3	0.7
JUNE	412	14	19	165	16	90	613	354	15	96	1396	10.8	0.9
JULY	336	11	14	178	12	93	558	392	10	97	1277	8.2	0.7
AUG	333	11	15	190	21	89	563	229	13	94	720	7.8	0.5
SEPT	411	14	31	220	21	90	817	255	13	95	994	8.3	1.0
OCT	442	14	21	215	27	87	832	370	37	90	1473	8.6	2.1
NOV	411	14	18	210	15	93	801	290	23	92	1096	3.1	0.7
DEC	531	17	22	165	23	86	754	198	15	92	972	3.3	0.4
TOTAL	4875	-	-	-	-	-	8141	-	-	-	14722	-	-
AVG.	406	13	MAXIMUM 31	183	16	91	678	318	16	95	1227	7.4	0.8
No. of Samples	-	-	-	21	21	-	-	21	21	-	-	45	38

FLOWS



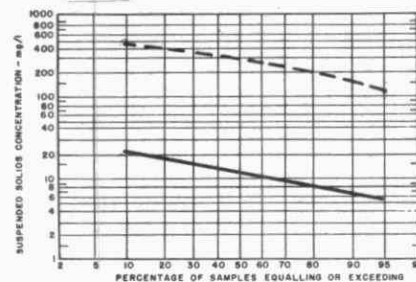
DESIGN CAPACITY -----

BOD₅

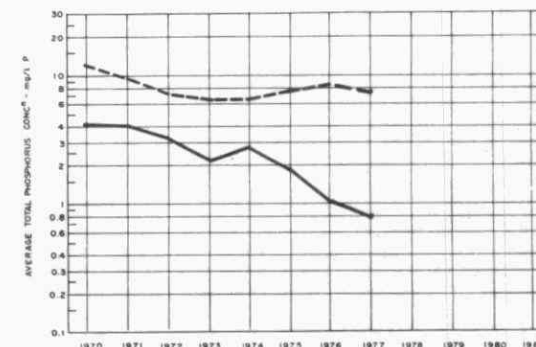
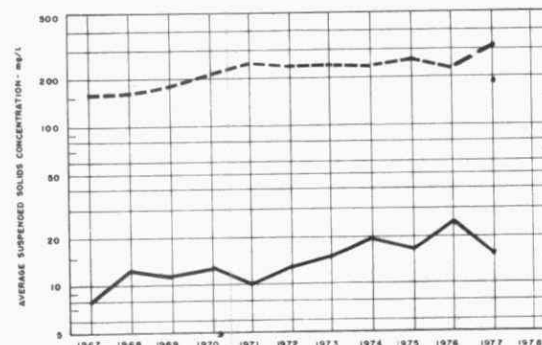
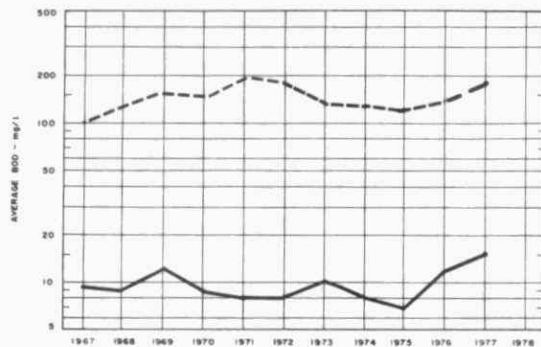
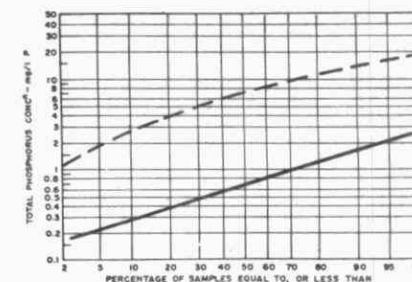


PLANT INFLUENT - - - - -
PLANT EFFLUENT —————

Susp. Solids



Phos.



TREATMENT DATA

BURLINGTON SKYWAY WPCP

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED 10 ³ pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	1130			7100	.10	1.6				858	15000		5098
FEB	1120			5300	.13	1.6				943	11000		5600
MAR	1380			5100	.09	2.8				659	11000		3910
APR	680			5300	.22	1.3				945	11000		5610
MAY	1270	6.4	3.4	6000	.18	1.0				350	13000		2075
JUNE	1140	11.1	2.7	5400	.15	1.4		13000		967	9000		5739
JULY	2150	12.2	3.6	6200	.09	1.6				72			427
AUG	2420	10.6	3.1	5700	.10	1.6				994			5900
SEPT	1500	10.3	2.5	5100	.17	1.1		5000		755			4480
OCT	1840	4.9	2.1	5700	.16	1.1				574	12000		3409
NOV	2100			6100	.17	1.1		16000		664			3944
DEC	1290			4500	.23	1.2				371			2206
TOTAL	18020	55.5	-	-	-	-		-	-	8152	-	-	48399
AVG.	3.7 cu. ft./mil gal	11.1	2.9	5600	.15	1.5		11000		679	14000		4033

DESIGN DATA

PROJECT Village of Coldwater

PROJECT NO. 1-0020-66

TREATMENT

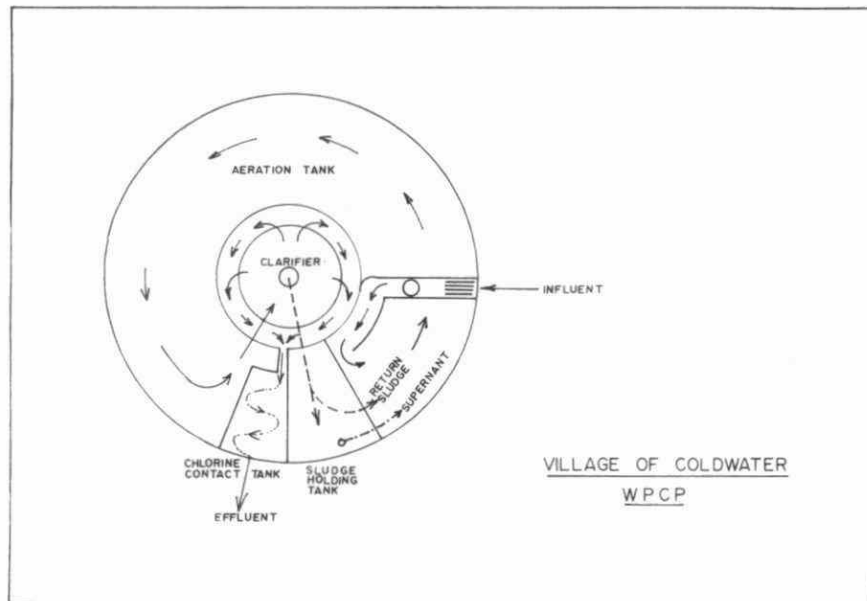
DESIGN FLOW 0.12 mgd

PUMPING STATIONS

No.1 -2 submersible pumps plus one standby
@ 248 Igpm when two running

No.2 -2 submersible pumps @ 227 Igpm each

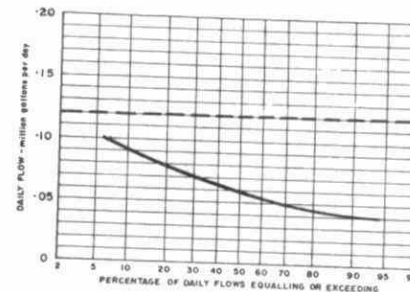
No.3 -one submersible pump @ 81.4 Igpm.



SEWAGE

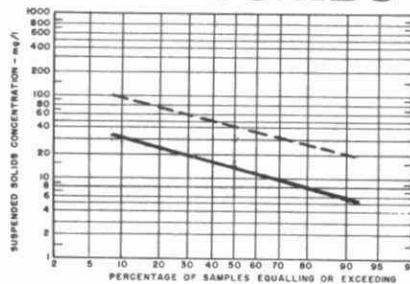
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	pounds	mg/l	mg/l	%	pounds	mg/l P	mg/l P
JAN	1.36	.044	.050	120	6	95	1550	107	17	84	1224	6.5	4.6
FEB	1.40	.050	.060	65	10	85	770	78	17	78	854	5.4	3.6
MAR	2.58	.083	.202	14	7	50	181	27	7	74	516	2.3	14.0
APR	1.93	.064	.084	11	7	36	77	20	26			1.7	2.9
MAY	1.52	.049	.061										
JUNE	1.49	.049	.059	40	6	85	507	48	14	71	507	3.0	2.8
JULY	1.49	.048	.084										
AUG	Est. 1.49	.048	N/A	121	5	96	1728	40	28	30	179	3.8	4.0
SEPT	Est. 1.49	.049	N/A										
OCT	2.72	.089	.114	34	4	88	816	32	8	75	623	2.3	2.3
NOV	2.87	.092	.134	28	5	82	660	20	10	50	287	2.0	3.6
DEC	2.69	.087	.134	16	4	75	323	18	18	22	135	1.6	3.1
TOTAL	23.03	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	1.92	.063	MAXIMUM .202	55	5	91	960	44	16	64	537	3.2	4.3
No. of Samples	-	-	-	11	11	-	-	11	11	-	-	11	11

FLOWS



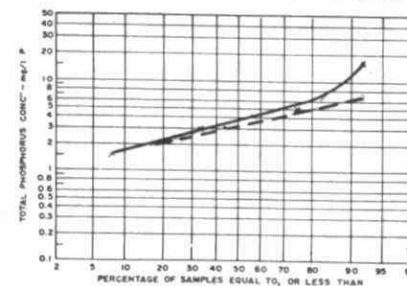
DESIGN CAPACITY -----

SUSPENDED SOLIDS

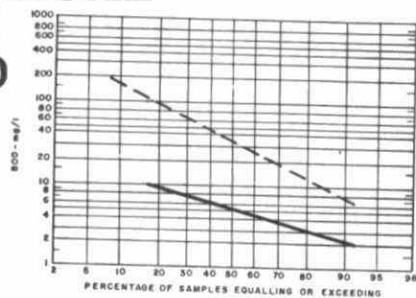


PLANT INFLUENT -----
PLANT EFFLUENT _____

PHOSPHORUS



BIOCHEMICAL OXYGEN DEMAND



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb BOD	QUANTITY SUSPENDED SOLIDS 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAILED cubic yards
JAN	.8	76	5.4	3300	.002					24000	67		
FEB		60	4.3	2000	.002					28000	71		
MAR	1.0	124	4.4	800	.002					24000	79		
APR		71	3.7	900	.001					16000	69		
MAY		62	4.2										
JUNE		65	4.6	1900	.001		3000	71					
JULY	.5	80	5.0										
AUG	1.0	76	5.4	2000	.003		14000	63					
SEPT	1.5	57	4.1										
OCT	1.3	93	3.7	1800	.001		25000	72		27000	70		
NOV	.8	87	3.1	2100	.001		10000	65		11000	67		
DEC	.8	65	2.4	1100	.001		2000	61		15000	73		
TOTAL	7.7	916	-	-	-	-	-	-	-	-	-	-	
AVG.	.3 cu ft/min/gal	76	4.0	1800	.002		11000	66		21000	71		

DESIGN DATA

PROJECT: Fenelon Falls WPCP

PROJECT NO. 1-0095-67

TREATMENT: Extended Aeration

DESIGN FLOW: 0.22 MIGD

BOD - Raw Sewage 374 lb/day

SS - Raw Sewage 440 lb/day

FRANCES ST. P.S.

Pumps:
Type: Two, submersibles
Size: each 83 IGPM

OAK ST. P.S.

Pumps:
Type: Two, submersibles
Size: each 375 IGPM

MAIN (PLANT) P.S.

Pumps:
Type: Three MORSE centrifugal
Size: each 550 IGPM

GRIT CHANNELS

Size: Two, each 21.75'x2'x1.5'awd
Volume(each): 407 I.G.
Retention(each): 2.7 min

COMMINUTOR

Size: 10-inch

Bar screen/in bypass channel

OXIDATION DITCH

Width: 18' (at top)
Length: centres 100' apart

ROTOR

Type: pumps and softeners
Size: 14'x2.3' dia.

FINAL CLARIFIER

Type: one, circular
Size: 30' i.d. x 10' awd
Volume: 45,600 I.G.
Retention: 5.0 hr
Loadings:
- Surface: 311 IG/ft²/day
- Weir: 2340 I.G./ft/day

CHLORINE CONTACT CHAMBER

Size: one, 10'x15.5'x5.25'awd
Volume: 5100 I.G.
Retention: 33 min.

SLUDGE TRANSFER PUMP

Type: one, A.S. Leitch
Size: 214 gpm @ 46' TDH

SLUDGE HOLDING TANK

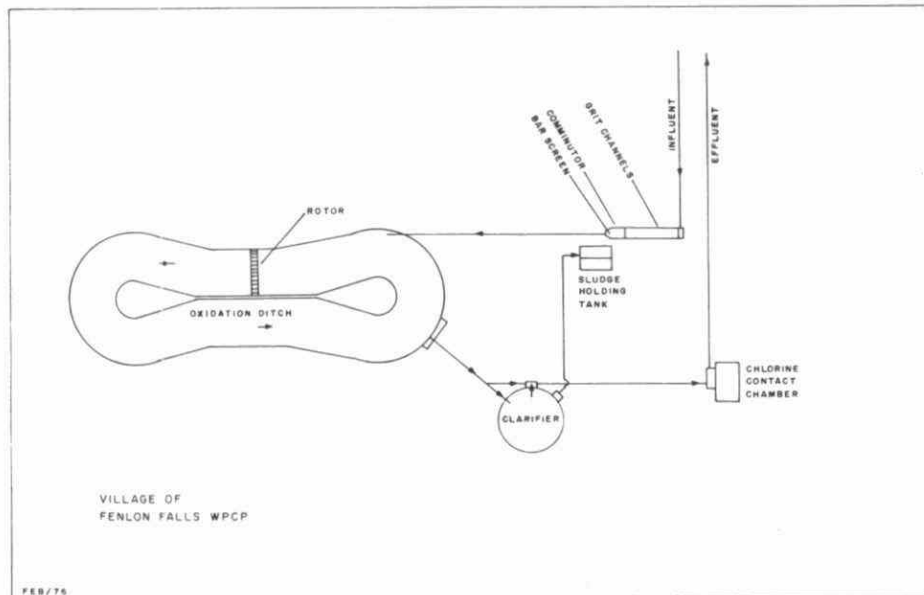
Type: two, rectangular
Size: each 12'x5'x9'awd
Volume: each 3370 I.G.

BLOWER

Type: one Utility Technology
Size: 44 cfm @ 6 psi

ALUM STORAGE TANK

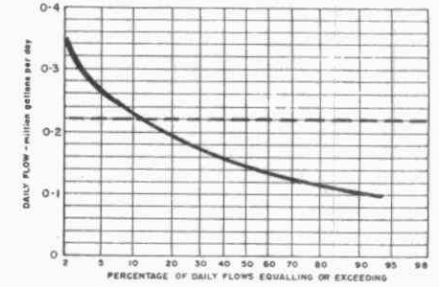
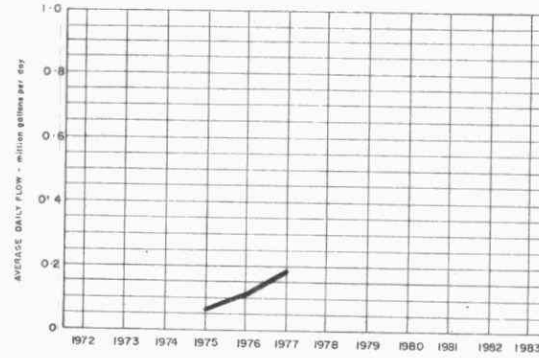
Capacity: 5000 gal.



PLANT PERFORMANCE SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND			SUSPENDED SOLIDS				PHOSPHORUS		
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT		
	million gallons	mil. gal	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P	mg/l P		
JAN	3.29	.11	.15	84	13	85	2.3	157	34	78	4.0	6.6	4.2
FEB	5.04	.18	.21	67	9	87	2.9	83	12	86	3.6	4.1	0.7
MAR	9.08	.29	.68	37	5	86	2.9	68	15	78	4.8	2.5	1.4
APR	4.96	.17	.25	62	4	94	2.9	84	32	62	2.6	4.9	0.9
MAY	3.42	.11	.14	58	4	93	1.8	66	16	76	1.7	4.0	0.8
JUNE	3.24	.11	.14	145	4	97	4.5	123	12	90	3.6	7.3	1.4
JULY	3.79	.12	.16	143	2	99	5.3	193	6	97	7.1	9.5	1.2
AUG	5.37	.17	.28	98	2	98	5.2	167	23	86	7.7	6.0	0.8
SEPT	4.24	.14	.23	107	2	98	4.4	139	8	94	5.5	7.7	0.5
OCT	6.11	.20	.31	65	2	97	3.8	107	15	86	5.6	4.6	0.6
NOV	5.84	.20	.33	80	2	98	4.5	110	13	88	5.6	5.0	0.4
DEC	5.44	.18	.28	68	2	97	3.6	101	15	85	4.6	5.0	0.8
TOTAL	65.26	-	-	-	-	-	50.2	-	-	-	63.3	-	-
AVG.	5.44	.18	MAXIMUM .68	82	5	94	4.2	115	18	84	5.2	5.4	1.3
No. of Samples	-	-	-	43	47	-	-	43	47	-	-	43	47

PROCESS DATA FLOWS

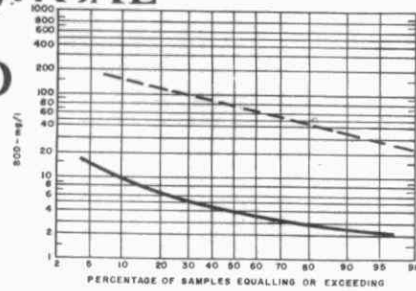


DESIGN CAPACITY -----

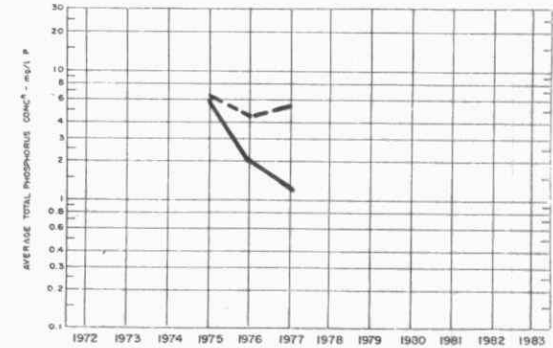
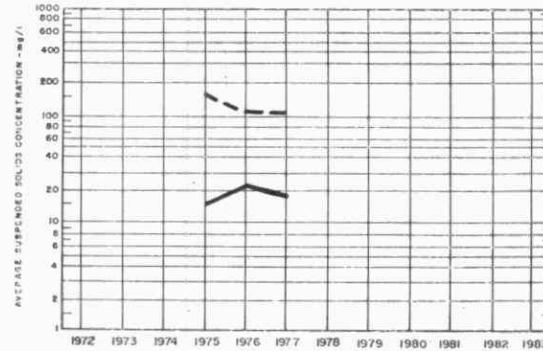
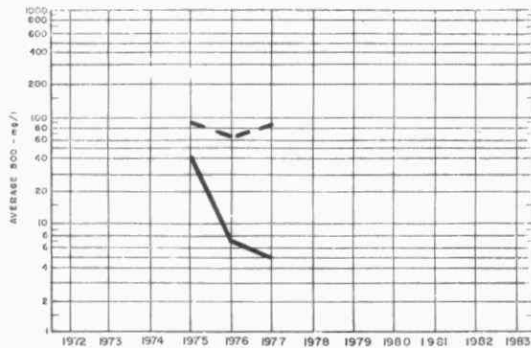
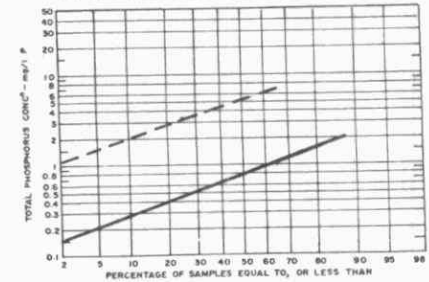
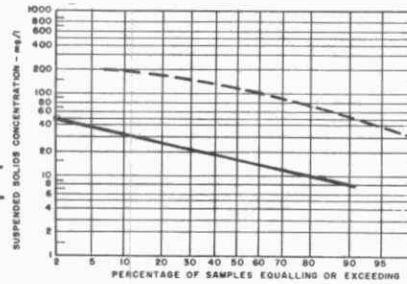
SUSPENDED SOLIDS

PHOSPHORUS

BIOCHEMICAL OXYGEN DEMAND



PLANT INFLUENT -----
PLANT EFFLUENT -----



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	Cl ₂ USED	AVG DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ lb BOD	10 gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN		176	5.3	3200	.02					11			64
FEB		201	4.0	2700	.03								
MAR	1.5	281	3.1	3300	.02					15			89
APR		223	4.5	3600	.02					26			154
MAY		196	5.8	3500	.01								
JUNE		182	5.7	3900	.02								
JULY	2	199	5.2	3300	.03					18			107
AUG		176	3.2	2800	.04					12			71
SEPT	3	164	3.9	3100	.03					14			83
OCT	5	186	3.1	2700	.03								
NOV		183	3.1	3100	.03					14			83
DEC		196	3.6	3100	.02					30			178
TOTAL	11.5	2363	-	-	-	-		-	-	140	-	-	829
AVG.	.2 cu. ft/mi. gal	197	3.6	3200	.03								

DESIGN DATA

PROJECT Village of Hastings

PROJECT NO. 1-0084-76

TREATMENT Extended Aeration

DESIGN FLOW 0.233 MGD

PRIMARY TREATMENT

Screening

Bar Screen with 2" x 1/4" bars @ 1'c/c

Grit Removal

2 Grit tanks 1.5' x 22' x 1.4' deep.

SECONDARY TREATMENT

Oxidation Ditch

Volume: 62,400 ft.³

Detention: 40 hrs.

Motors: 3 - 20 hp. @ 90 rpm.

Cage Rotor: 27 1/2" dia. x 60' long.

Clarifier

Size: 29' dia. x 10' SWD

Loading: Surface = 350 gpd/ft.²

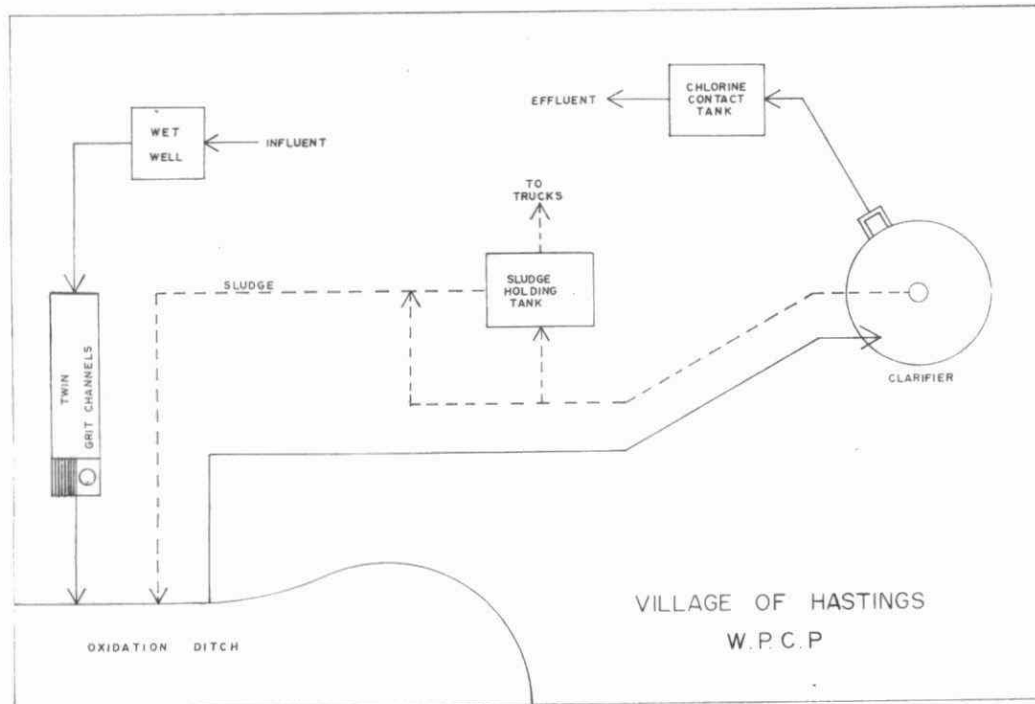
Weir = 2560 gpd/ft

Sludge Handling

Storage Volume: 4780 ft.³

Blower: 95 cfm @ 6 psi.

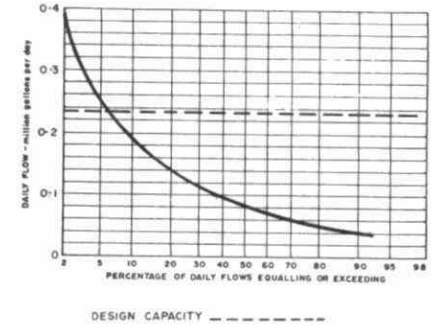
20 cfm/1000 ft.³



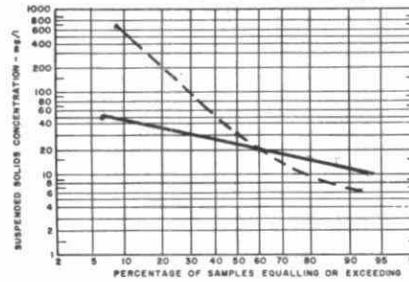
SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	Est. 2.23	.072	.135	10	12			8	15			0.8	2.4
FEB	4.01	.143	.268	29	19	34	.4	30	31			1.9	2.6
MAR	8.31	.268	.506	70	15	79	4.6	152	29	81	10.2	13.2	3.1
APR	Est. 5.19	.173	.267										
MAY	Est. 2.20	.071	.117	20	20			43	35	19	.2	2.5	8.1
JUNE	1.90	.063	.141	500	29	94	8.9	157	38	76	2.3	4.8	7.4
JULY	1.54	.050	.093	10	5	50	.1	21	26			1.8	2.3
AUG	2.34	.075	.192										
SEPT	1.77	.059	.100		14				20				
OCT	2.52	.081	.125	500	8	98	12.4	735	15	98	18.1	54.0	13.0
NOV	2.94	.098	.179	985	14	99	28.2	2965	30	90	85.6		
DEC	Est. 3.97	.128	.242	420	6	99	16.4					29.0	5.7
TOTAL	38.92	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	3.24	.107	MAXIMUM .506	192	16	92	5.7	362	28	92	10.8	6.2	4.9
No. of Samples	-	-	-	14	16	-	-	12	15	-	-	12	13

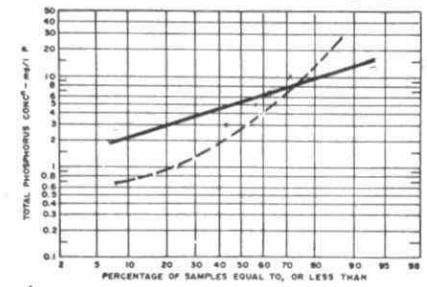
FLOWS



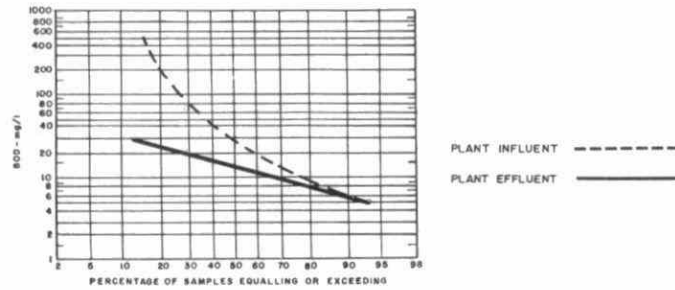
SUSPENDED SOLIDS



PHOSPHORUS



BIOCHEMICAL OXYGEN DEMAND



TREATMENT DATA

HASTINGS WPCP

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			HOLDING TANK			
	QUANTITY REMOVED	Cl ₂ USED	AVG. DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/L	mg/L	day ⁻¹	1000 ft ³ 15 800	10 ³ gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN	4	124	5.6	143	.01								
FEB	6	201	5.0	104	.10								
MAR	7	308	3.7	222	.22								
APR		217	4.2										
MAY	10	248	11.3	358	.01		84				2.2	77	
JUNE	6	208	10.9	466	.17		24			41	3.3	88	243
JULY	6	261	17.4	286	.003		19						
AUG	8	297	12.9				73			28			166
SEPT	4	350	19.4	4200			343			90			534
OCT	5	366	14.6	2600	.04		590			80			475
NOV	4	320	11.0	4900			947			60			356
DEC	3	341	8.2	6300	.02		806			34			202
TOTAL	63	3271	-	-	-	-	2913	-	-	333	-	-	1976
AVG.	1.6 cu. ft./ml gal	273	8.4	2000	.07						2.8	83	

DESIGN DATA

PROJECT: Village of Norwood WPCP

PROJECT NO. 1-0125-67

DESIGN FLOW: 0.16 MIGD

DESIGN POPULATION: 1600

BOD - Raw Sewage - 272 lb/day

SS - Raw Sewage - 320 lb/day

RAW SEWAGE PUMPS

Type: Two, Pacific CB0330
Size: (each) 487 USGPM

COMMINUTOR:

Type: Heligear HTM1
Size: 10-inch

GRIT CHANNELS

Size: Two, 1.25'x18'x1'awd
Volume (each): 140 I.G.
Retention (one): 1.3 hr

OXIDATION DITCH

Volume: 118,000 I.G.
Retention: 17.7 hrs

ROTOR

Type: Pumps and Softeners
Size: 27.5" dia x 10.2'1

CLARIFIER

Size: One, 21'i.d. x 9.1'awd
Volume: 19,700 I.G.
Retention: 3.0 hr

SLUDGE TRANSFER PUMP

Type: One carter 800 D
Size: 159 gpm

CHLORINE CONTACT CHAMBER

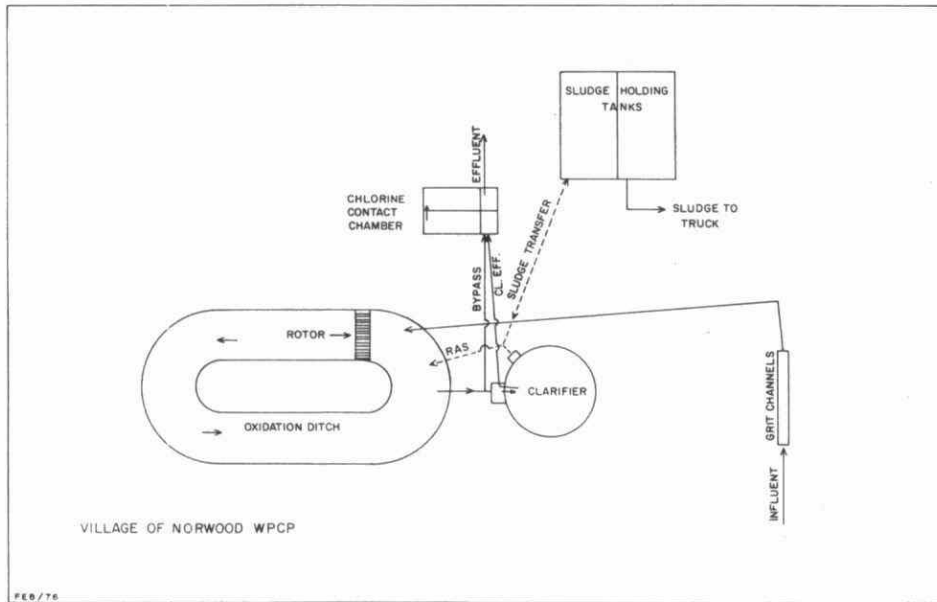
Type: Two-pass
Size: each pass 9.7' x 4.4' x 5.9' awd
Volume (total): 3100 I.G.
Retention: 30 min.

SLUDGE HOLDING TANKS

Size: Two, 35'x17.5' x 8' awd
Volume (total): 61,100 I.G.

BLOWER

Type: One Gatx DA105
Size: 10 HP

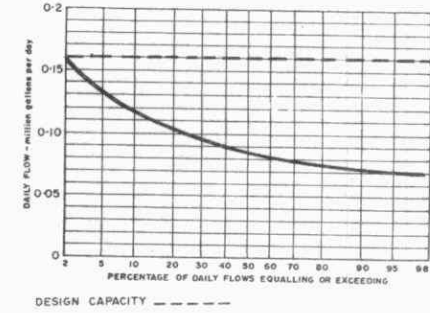
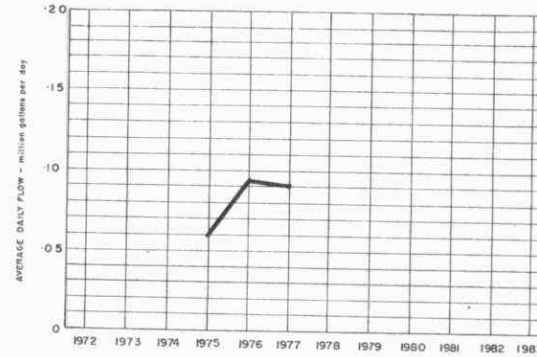


PLANT PERFORMANCE SEWAGE

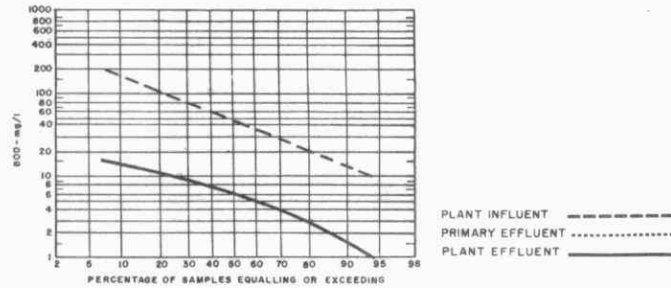
NORWOOD WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	pounds	mg/l	mg/l	%	pounds	mg/l P	mg/l P
JAN	2.47	.080	.103	21	8	62	321	25	9	64	395	1.9	1.8
FEB	2.09	.075	.097	17	12	29	105	16	9	44	146	1.9	1.8
MAR	3.57	.115	.167	53	7	87	1642	57	14	75	1535	3.4	1.2
APR	3.18	.106	.124	125	6	95	3784	152	8	95	4579	5.8	1.1
MAY	2.74	.088	.099	11	3	73	219	19	5	74	384	1.6	1.1
JUNE	2.42	.081	.096	110	3	97	2589	130	8	94	2952	10.0	1.8
JULY	2.58	.083	.099	75	5	93	1806	88	5	94	2141	4.9	2.9
AUG	2.47	.080	.089	130	1	99	3186	98	5	95	2297	9.5	1.6
SEPT	2.44	.081	.094										
OCT	2.85	.092	.101										
NOV	2.74	.091	.103										
DEC	3.16	.102	.151	180	19	89	5088	185	19	90	5246	6.8	1.4
TOTAL	32.71	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	2.73	.090	MAXIMUM .167	72	7	90	1772	79	9	89	1908	4.6	1.7
No. of Samples	-	-	-	14	14	-	-	14	12	-	-	14	14

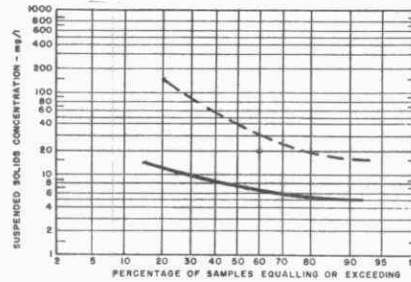
PROCESS DATA FLOWS



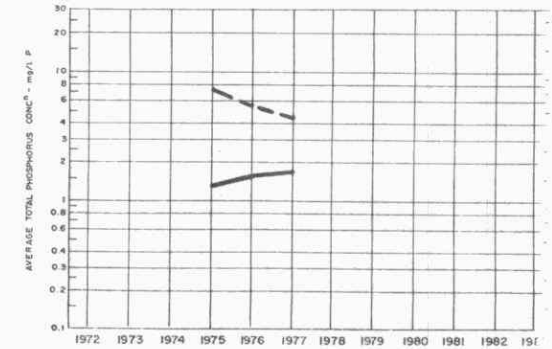
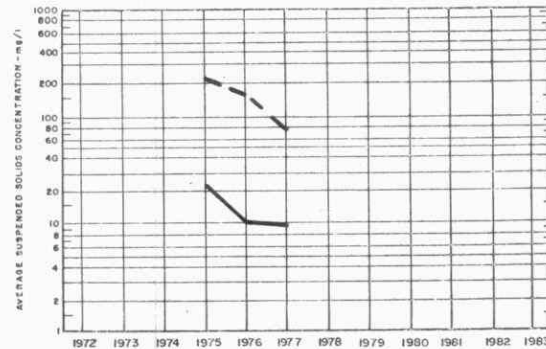
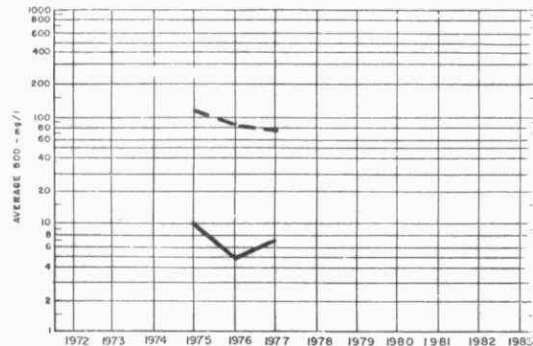
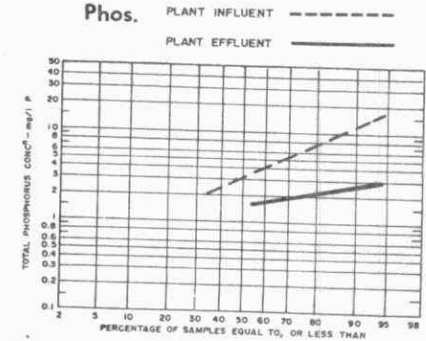
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	CL ₂ USED pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb 800	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	11.5	115	4.6	1900	.01		39						
FEB	10.0	112	5.3	2100	.01		47			20000			
MAR	5.0	122	3.4	2300	.02		30						
APR	6.5	108	3.4	1500	.07		57						
MAY	4.5	122	4.5	1600	.005		368		42			250	
JUNE	4.0	114	5.0	1300	.06		58						
JULY	4.5	122	7.6	1300	.04		56						
AUG	4.5	125	5.0	1200	.07		64						
SEPT	4.0	121	5.0	1200			32						
OCT	3.5	129	4.4	1300			32						
NOV	4.5	123	4.6	1300			64						
DEC	5.0	143	4.5	1100			48						
TOTAL	67.5	1456	-	-	-	-	895	-	-	42	-	-	250
AVG.	2.1 cu. ft./mil gal	121	4.4	1500	.04					20000			

DESIGN DATA

PROJECT: Clarkson WPCP

PROJECT NO: 1-0053-66

TREATMENT: Extended Aeration

DESIGN FLOW: 10 mgd

BOD: Raw Sewage 222 mg/l

SS-Raw Sewage 250 mg/l

PRIMARY TREATMENT

SCREENING
Type: Mechanical

GRIT TANKS
Size: Two, (each) 21' x 97.4' x 13.9' awl
(177,400 I.G. each)
Retention: (each) 26 min.

SECONDARY TREATMENT

AERATION TANKS
Type: four-pass, rectangular
Size: two, each pass 20.25' x 312' x 15' awl
(4,731,000 I.G. total)
Retention: 11.4 hr

BLOWERS
Size: two (each) 39,000 cfm

SECONDARY SEDIMENTATION
Size: two, each 250' x 80' x 12' awl
(2,995,000 I.G. total)
Retention: 7.2 hr

SLUDGE PUMPS
Recirculating
Size: three, (each) 6,700 gpm

Wasting
Size: Four, (each) 600 gpm

CHLORINATORS
Type: Fisher and Porter
Size: Two, each 2,000 lb/day max.

SLUDGE HANDLING

SLUDGE TREATMENT PLANT

PRIMARY SEDIMENTATION
Size: Two, each 60' x 14' x 10'
(105,000 I.G. total)

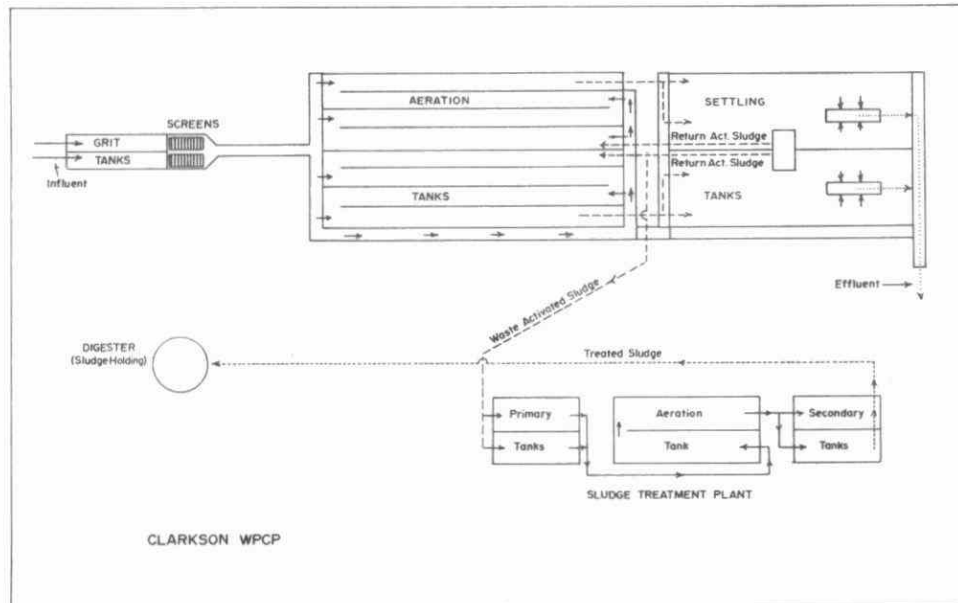
AERATION

Type: two-pass, diffused air
FLEXOFUSERS
Size: One, 120' x 18' x 11.25' each pass
(303,000 I.G.)
Air Supply: 3 blowers, 1400 cfm, 1700 cfm,
2150 cfm (7.5 psi)

SECONDARY SEDIMENTATION

Size: two, 74' x 14' x 10.75'
(137,000 I.G. total)

DIGESTER: (used as holding tank)
Type: concrete fixed-roof gas mixing
Size: One, 55' dia x 20' swd
(52,400 ft³)

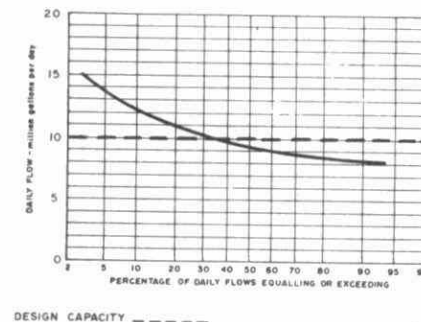
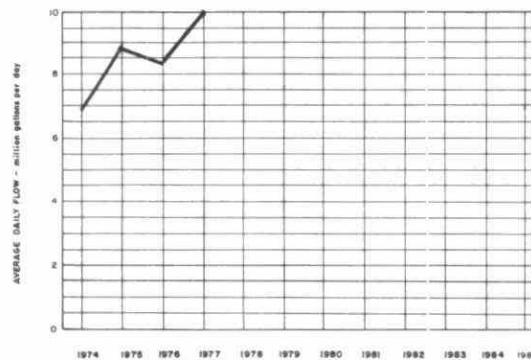


PLANT PERFORMANCE SEWAGE

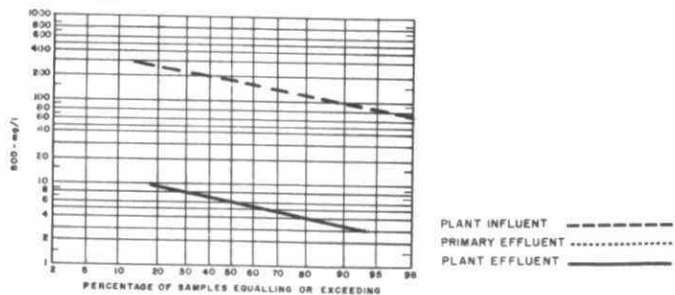
CLARKSON WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND			SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	
	million gallons	mil gal/ day	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P	mg/l P	
JAN	258	8.3	9.1	262	7	97 658	408	12	97 1022	16.5	4.0	
FEB	239	8.5	10.4	318	8	97 741	605	12	98 1417	7.8	2.7	
MAR	336	10.8	15.3	223	6	97 729	286	14	95 914	7.6	2.2	
APR	318	10.6	18.9	214	5	98 664	286	6	98 890	8.5	2.8	
MAY	280	9.0	11.1	308	9	97 837	357	19	96 946	7.9	1.9	
JUNE	282	9.4	10.8	212	8	96 575	196	7	96 533	8.6	2.8	
JULY	269	8.6	11.0	217	7	97 565	259	15	94 656	9.8	2.4	
AUG	273	8.8	10.6	187	5	97 497	230	12	95 595	8.3	1.3	
SEPT	301	10.0	16.2	129	8	94 364	153	6	96 442	7.0	1.1	
OCT	336	10.8	12.4	152	4	97 497	237	6	97 776	6.9	1.0	
NOV	346	11.5	14.4	137	4	97 460	257	7	97 865	7.1	0.7	
DEC	396	12.8	19.0	135	6	96 510	175	9	95 657	6.0	0.5	
TOTAL	3634	-	-	-	-	- 6868	-	-	- 9012	-	-	
AVG.	303	10.0	19.0	195	6	97 572	258	10	96 751	7.7	1.7	
No. of Samples	-	-	-	87	85	-	87	86	-	79	79	

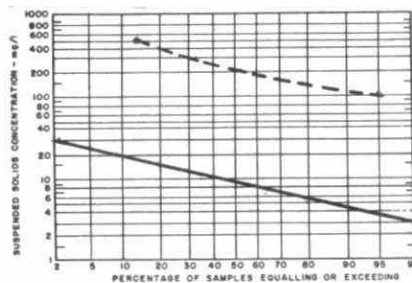
PROCESS DATA FLOWS



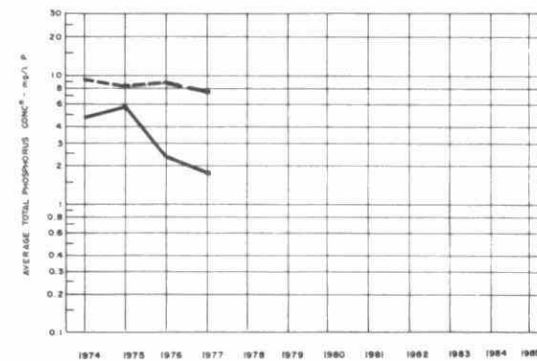
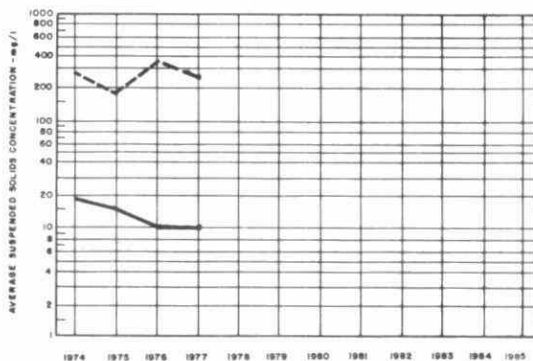
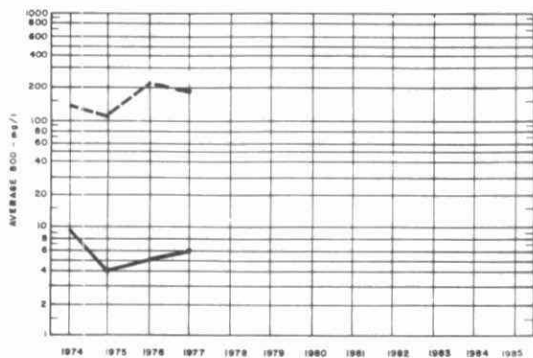
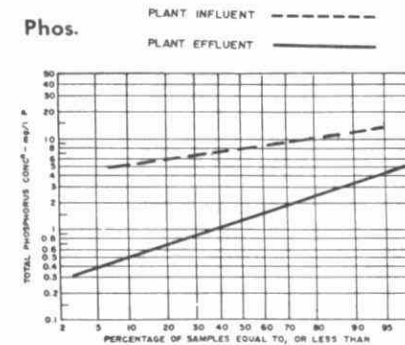
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
		Cl ₂ USED 10 ³ pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN		7.4	2.9	10000	.05	1.5	2.0	18000		607	43000	58	3600
FEB		6.4	2.7	9600	.06	1.2	1.8	18000		634	34000	63	3760
MAR	290	9.0	2.6	7500	.07	1.4	1.8	15000		620	39000	64	3680
APR		9.6	3.0	8500	.06	1.6	1.7	17000		410	35000	55	2432
MAY		8.6	3.0	8200	.07	1.2	2.3	15000		985	33000	61	5840
JUNE		9.3	3.4	8000	.05	1.8	1.9	15000		815	39000	57	4840
JULY		9.6	3.5	7400	.05	1.9	2.0	13000		949	30000	57	5640
AUG	490	9.6	3.5	9500	.04	2.4	1.8	17000		754	45000	52	4480
SEPT	378	9.5	3.1	8000	.04	3.3	1.3	17000		511	40000	52	3034
OCT		8.7	2.6	7800	.05	2.6	1.8	19000		612	46000	52	3634
NOV	280	9.6	2.7	9000	.04	2.6	2.3	19000		518	45000	52	3073
DEC		9.4	2.4	8300	.04	2.6	1.6	19000		432	45000	60	2560
TOTAL	1438	106.7	-	-	-	-	22.3	-	-	7847	-	-	46873
AVG.	0.4 cu. ft/mi gal	8.9	2.9	8500	.05	2.0	1.9	17000		654	40000	57	3906

REGION 4
Southeastern

DESIGN DATA

Project: Bancroft WPCP

Project No: 1-0263-71

Treatment: Contact stabilization plant operated as extended aeration

Design Flow: Contact stabilization 0.4 M.I.G.D.
* Extended aeration 0.26 M.I.G.D.
BOD - Raw Sewage - 200 mg/l

Pumping Stations

P.S. No.1
Type: Two, SMART TURNER Submersible
Size: each 250 I.G.P.M.

P.S. No.2
Type: Two, submersible
Size: each 85 I.G.P.M.

P.S. No.3
Type: Two, submersible
Size: each 85 I.G.P.M.

P.S. No.4
Size: Two, each 500 I.G.P.M. @ 52.5' TDH

At-Plant P.S.
Type: Two, SPAANS screw pumps.
Size: each 1100 I.G.P.M. @ 19' TDH

Grit Channels
Type: Two, rectangular
Size: each 24' x 2' x 1.5' awl
(450 I.G.)
*Retention: each 2.5 min.

Comminutor
Type: one, CORD 16-inch

Biological Treatment

Aeration Cell No.1
(Future re-aeration)
Volume: 101,300 I.G.
*Retention: 9.4 hr

Aeration Cell No.2
(Future aerobic digester No.1)
Volume: 47,400 I.G.
*Retention: 4.4 hr

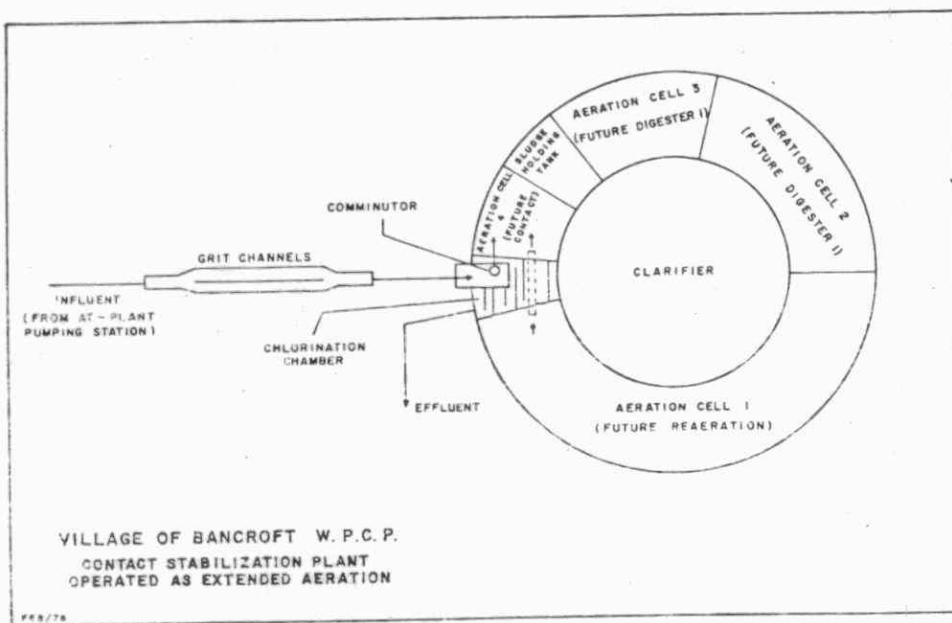
Aeration Cell No.3
(Future aerobic digester No.2)
Volume: 30,300 I.G.
*Retention: 2.8 hr

Aeration Cell No.4
(Future contact)
Volume: 16,400 I.G.
*Retention: 1.5 hr

Chlorination Chamber
Volume: 11,000 I.G.
*Retention: 1.0 hr

Chlorinator
Type: F and P 70C344
Size: 250 lb/day

Clarifier:
Size: 50' dia. x 8.2' awd
Volume: 100,500 I.G.
*Retention: 9.3 hr
Loading:
* Surface: 132 I.G./ft²/day
* Weir: 1655 I.G./ft/day



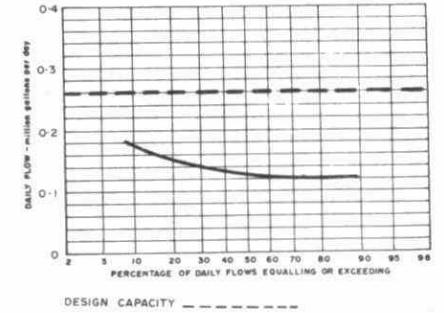
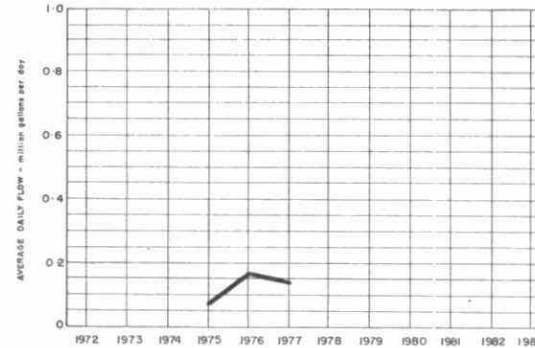
PLANT PERFORMANCE

BANCROFT WPCP

SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mi. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	4.23	.14	.16	120	2	98	5.0	85	15	82	3.0	6.6	3.4
FEB	3.80	.14	.16	30	2	93	1.1	40	15	63	1.0	2.6	4.2
MAR	5.13	.17	.19	24	2	92	1.1	40	15	63	1.3	2.4	3.0
APR	5.21	.17	.19	130	3	98	6.6	140	36	74	5.4	4.8	3.3
MAY	4.95	.16	.19	125	10	92	5.7	117	30	74	4.3	5.6	5.3
JUNE	4.15	.14	.17	33	3	91	1.2	57	18	68	1.6	3.8	3.5
JULY	3.62	.12	.14	50	4	92	1.7	53	17	68	1.3	4.1	3.6
AUG	4.23	.14	.22	70	6	91	2.7	83	18	78	2.8	3.7	3.7
SEPT	3.60	.12	.15	55	4	93	1.8	90	15	83	2.7	5.0	3.5
OCT	3.86	.12	.14	27	6	78	.8	50	15	70	1.4	3.3	3.6
NOV	3.71	.12	.14	49	7	86	1.6	110	18	84	3.4	4.2	3.3
DEC	4.45	.14	.20	26	7	73	.8	57	7	88	2.2	8.6	2.6
TOTAL	50.94	-	-	-	-	-	28.0	-	-	-	27.0	-	-
AVG.	4.25	.14	.22	60	5	92	2.3	70	17	76	2.2	4.7	3.5
No. of Samples	-	-	-	27	26	-	-	28	26	-	-	28	27

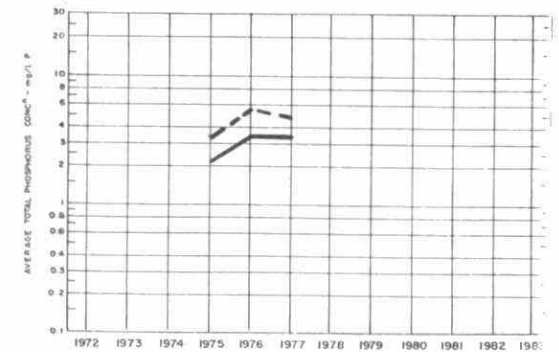
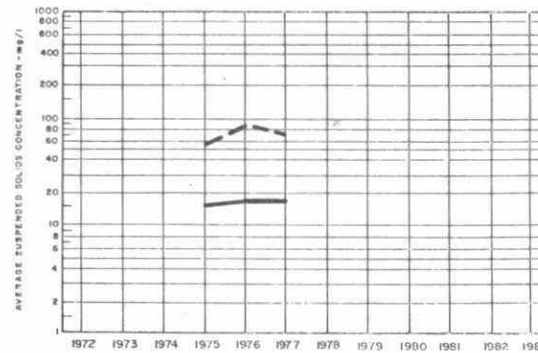
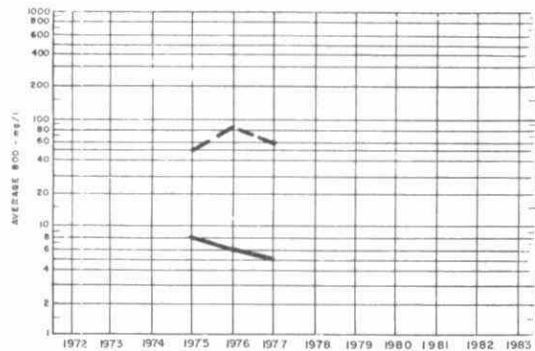
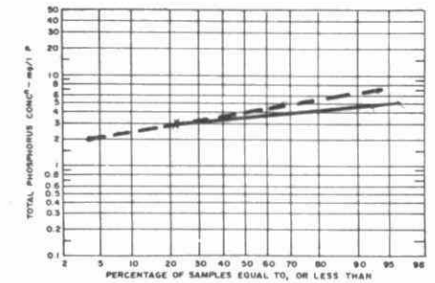
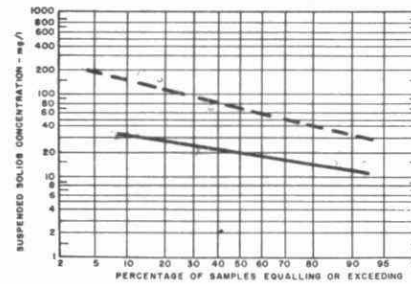
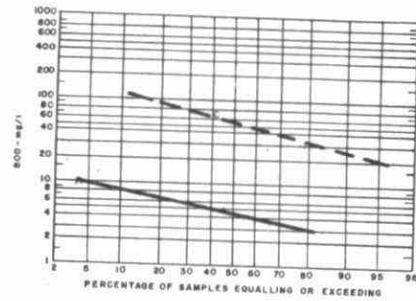
FLOWS



Susp. Solids

Phos.

BOD₅



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	Cl ₂ USED	AVG. DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft lb BOG	10 gallons	mg/l	%	10.5 gallons	mg/l	%	cubic yards
JAN		221	5.2	10600	.010			14000			23000	32	
FEB		187	4.9	8800	.002			16000	92		23000	70	
MAR		206	4.0	8500	.002			14000	63	22.4	25000	71	133
APR		259	5.0	7200	.020			9000	68		25000		
MAY		293	5.9	6600	.020			13000		35.3	20000		210
JUNE		292	7.0	3400	.010			7000		181.2	20000		1075
JULY		290	8.0	3600	.010			8000			8000		
AUG		235	5.6	4000	.010			8000		69.0	21000		410
SEPT		275	7.6	4800	.007			6000		34.2	5000	53	203
OCT.		215	5.6	2600	.010			6000			19000		
NOV		228	6.2	3900	.010			8000	72	26.6	15000	70	158
DEC		277	6.2	3200	.010			8000		26.4	23000		158
TOTAL		2978	-	-	-	-		-	-	395.1	-	-	2347
AVG.	cu. ft/m3 gal	248	5.8	5600	.010			10000	74		20000	59	196

DESIGN DATA

PROJECT Village of Barry's Bay
 PROJECT NO. 1-0126-67
 TREATMENT Extended aeration with phosphorous removal
 DESIGN FLOW 0.21 mgd
 DESIGN POPULATION 2318

PUMPING STATIONS

No.1 3 pumps 400 gpm @ 30'hd. and 5 hp.
 No.2 2 pumps 210 gpm @ 46'hd. and 9.4 hp.
 No.3 2 pumps 90 gpm @ 41'hd. and 5 hp.

PRETREATMENT

Grit Removal
 Twin Channel Bar Screen
 Comminutor - 3/4 hp. motor

SECONDARY TREATMENT

Aeration Tank

Volume: 0.22 mgall.
 Loading: 13 lb. BOD/day/1000 ft.³

Secondary Sedimentation

Loading, surface: 1000 lb/gall/day/ft.²
 Surface Area: 1092 ft.²

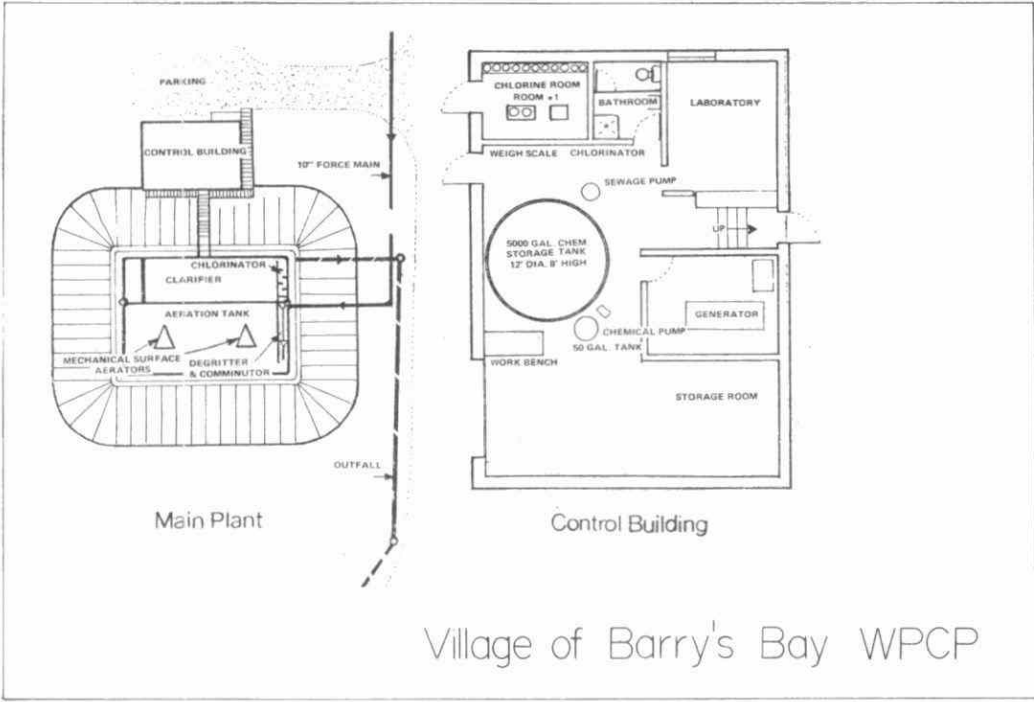
SLUDGE HANDLING

Holding Tank Volume: 2724 ft.³
 Air Supply: 700 cfm

CHLORINATION

Chlorine Contact Chamber

Volume: 5685 gal.
 Retention: 30 min.

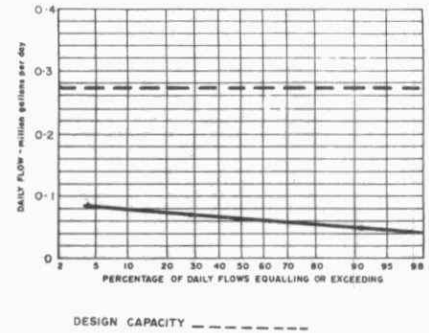


PLANT PERFORMANCE
SEWAGE

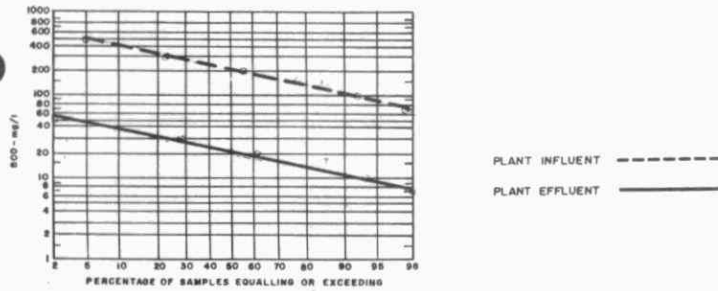
BARRY S BAY WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	1.61	.052	.070	280	43	85	3.8	40	75			15.0	4.0
FEB	1.47	.053	.070	175	33	81	2.1	142	82	42	.9	13.0	4.0
MAR	1.70	.055	.086	255	25	90	3.9	135	54	60	1.3	10.0	7.0
APR	1.63	.054	.072	185	22	88	2.7	122	37	70	1.4	10.0	6.0
MAY	1.93	.062	.082	163	27	83	2.6	103	45	56	1.1	9.0	6.0
JUNE	1.79	.059	.103	152	14	91	2.5	157	32	80	2.2	8.0	2.0
JULY	1.97	.063	.080	228	8	96	4.3	253	20	92	4.6	12.0	1.0
AUG	2.02	.065	.091	297	22	93	5.6	303	32	89	5.5	10.0	4.0
SEPT	2.02	.067	.072	215	8	96	4.2	250	15	94	4.8	10.0	.9
OCT	2.27	.073	.098	310	21	93	6.5	560	40	93	11.8	15.0	1.0
NOV	2.12	.070	.084	323	13	96	6.6	287	20	93	5.7	11.0	.5
DEC	2.33	.075	.089	190	28	95	3.8	120	25	79	2.2	12.0	2.0
TOTAL	22.86	-	-	-	-	-	42.1	-	-	-	31.5	-	-
AVG.	1.91	.063	MAXIMUM .103	222	38	83	3.5	185	47	75	2.6	11.3	4.2
No. of Samples	-	-	-	39	41	-	-	39	41	-	-	22	23

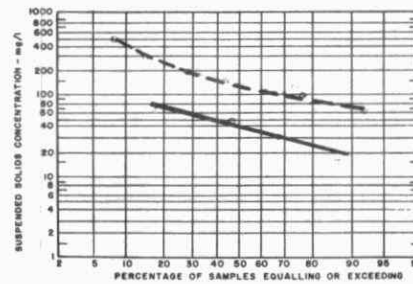
FLOWS



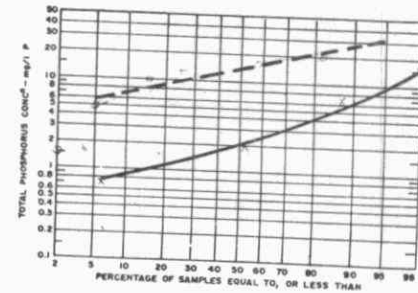
BIOCHEMICAL
OXYGEN
DEMAND



SUSPENDED
SOLIDS



PHOSPHORUS



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	CL ₂ USED	AVG. DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL. SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL. SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ BOD	10 gallons	mg/l	%	10 gallons	mg/l	%	cubic yards
JAN		282	17.5	3300	.01								
FEB		339	23.1	4100	.01								
MAR		124	7.3	2900	.02								
APR	2	197	10.2	3600	.01								
MAY		109	5.6	2600	.01					28000	62		
JUNE	1	86	4.8	2100	.01								
JULY		98	5.0	2600	.02								
AUG		90	4.5	2900	.02					9000			
SEPT		85	4.2	2900	.02								
OCT		95	4.2	3800	.02								
NOV		78	3.7	2900	.03								
DEC		78	3.7	3200	.02								
TOTAL	3	1661	-	-	-	-							
AVG.	0.1 cu. ft/mc1 gal	138	7.3	3100	.02					18500	62		

DESIGN DATA

PROJECT: Village of Chalk River WPCP

PROJECT NO: 1-0149-68

TREATMENT: Contact Stabilization
operated as Extended Aeration

DESIGN FLOW: .08 mgd Extended Aeration
0.12 mgd Contact Stabilization

BOD - Removal - 90%

SS - Removal - 90%

MAIN AND RAILWAY STS. P.S.
Pumps: Two, each 240 gpm

GRIT CHANNELS
Size: Two, each 2.5' x 20' x .75' and
(230 I.G. each)
Retention: (each) 0.4 min

BIOLOGICAL TREATMENT

AERATION TANK "A"
(Future Aerobic Digester)
Capacity: 21,700 I.G.
Retention: 0.65 hr

AERATION TANK "B"
(Future Re-aeration Tank)
Capacity: 42,300 I.G.
Retention: 1.27 hr.

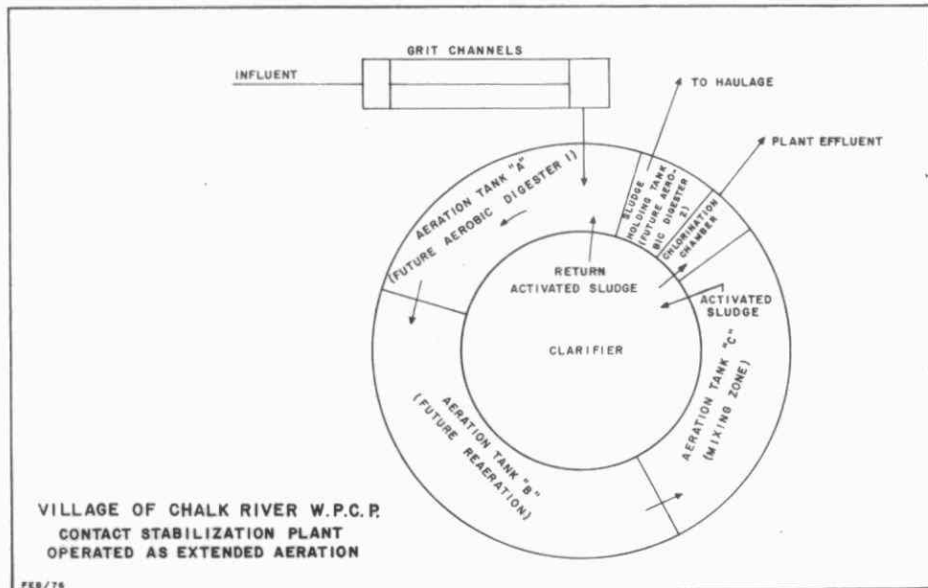
AERATION TANK "C"
(Future Mixing Tank)
Capacity: 16,500 I.G.
Retention: 0.49 hr

BLOWERS
Type: Two, Roots, RAI 812
Size: 25 HP

SETTLING TANK
Size: 48' o.d. x 10.2 and
Capacity: 52,900 I.G.
Retention: 1.6 hr
Loading:
- Surface 47 I.G./ft²/day
- Weir 548 IG/ft/day

SLUDGE HOLDING TANK
(Future Aerobic Digester 2)
Capacity: 6200 I.G.

PLANT P.S.
Pumps: Two, each 300 gpm

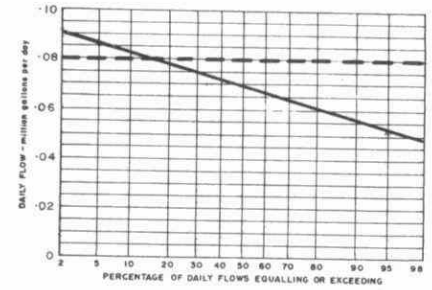
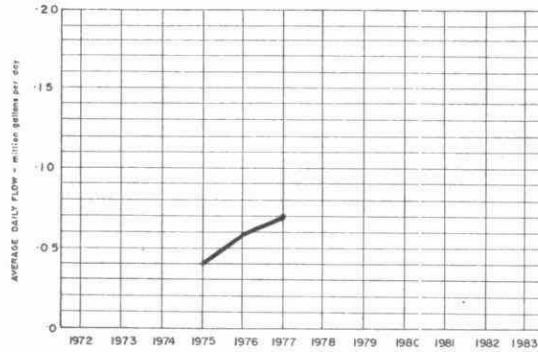


PLANT PERFORMANCE SEWAGE

CHALK R. WPCP

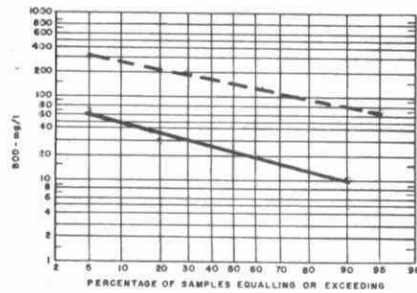
MONTH	FLOWS			BIO-CHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	1.72	.055	.077	165	21	87	2.5	128	113	12	.3	9.9	6.6
FEB	1.69	.060	.066	265	11	96	4.3	258	39	85	3.7	12.7	5.6
MAR	2.25	.073	.087	110	40	64	1.6	80	70	13	.2	7.6	5.4
APR	2.72	.091	.092	240	46	81	5.3	95	65	32	.8	9.0	5.5
MAY	2.45	.078	.085	163	35	79	3.1	115	41	64	1.8	6.0	5.2
JUNE	2.21	.074	.109	183	37	80	3.2	220	43	80	3.9	9.1	5.2
JULY	1.93	.062	.074	160	20	88	2.7	272	69	75	3.9	13.5	5.4
AUG	1.92	.062	.070	95	22	77	1.4	60	20	67	.8	7.2	5.8
SEPT	1.87	.062	.070	113	19	83	1.8	62	17	73	.8	6.4	5.3
OCT	1.99	.064	.087	75	13	83	1.2	85	20	76	1.3	5.2	5.1
NOV	2.03	.068	.078	110	28	75	1.7	160	60	63	2.0	5.8	4.9
DEC	2.23	.071	.080	200	22	89	4.0	350	35	90	7.0	9.8	4.4
TOTAL	25.01	-	-	-	-	-	34.3	-	-	-	27.8	-	-
AVG.	2.08	.070	MAXIMUM .109	163	26	84	2.9	161	50	69	2.3	8.7	5.4
No. of Samples	-	-	-	19	19	-	-	19	19	-	-	19	19

PROCESS DATA FLOWS



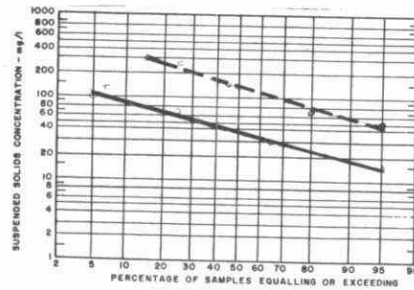
DESIGN CAPACITY - - - - -

BOD₅

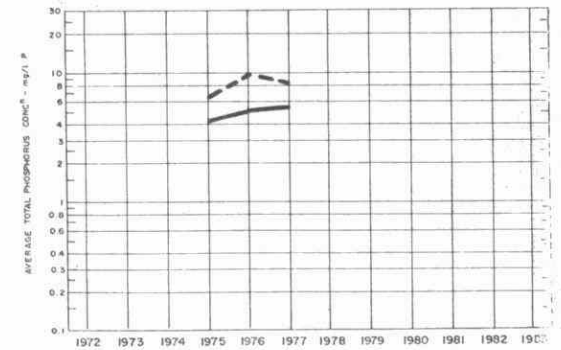
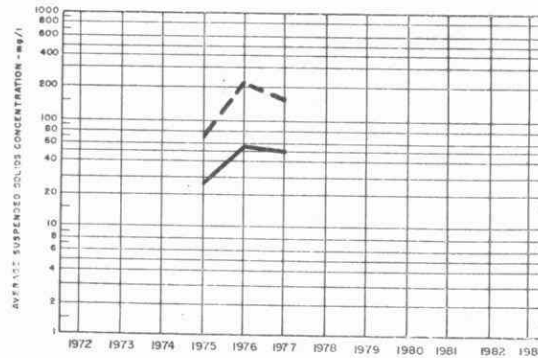
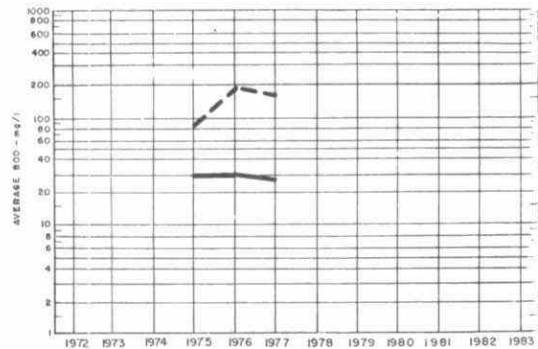
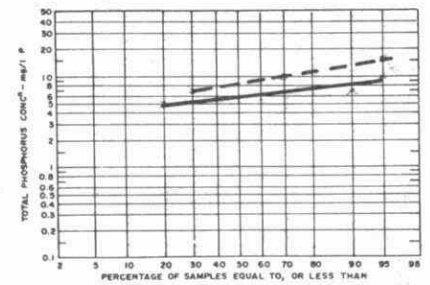


PLANT INFLUENT - - - - -
PRIMARY EFFLUENT
PLANT EFFLUENT - - - - -

Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	Cl ₂ USED	AVG. DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ lb BOD	10 gallons	mg/l	%	10 gallons	mg/l	%	cubic yards
JAN	1.0	32	1.9	6200	.02			10000	31		6000		
FEB	.5	26	1.5	9200	.02			15000					
MAR	2.0	32	1.4	9900				11000			16000		
APR	1.5	32	1.2	5000				6000					
MAY	5.0	36	1.4	4900	.03			12000			11000		
JUNE	8.0	55	2.5	5300	.03			9000			8000		
JULY		33	1.7	5500	.02			13000			5000		
AUG	1.0	47	2.4	6900	.01			11000			9000		
SEPT	1.5	32	1.7	3000	.02						2600		
OCT.	2.0	29	1.5	4000	.01			45000			12000		
NOV		31	1.5	4100	.02			15000			31000		
DEC		38	1.7	400	.37			19000					
TOTAL	22.5	423	-	-	-	-		-	-		-	-	
AVG.	0.9 cu. ft./mi. gal	35	1.7	5400	.06			15000	31		11200		

DESIGN DATA

Project: Town of Deseronto WPCP
 Project No: 1-0010-66
 Design Flow: 0.3 MGD
 BOD: Raw Sewage 197 mg/l
 Removal 90%
 SS: Raw Sewage 224 mg/l
 Population: 2800

SEDIMENTATION SECTION:
 Volume: 86,350 I. Gal. Detention: 6.9 hours
 Surface overflow rate: 330 gal/ft²/day

CHLORINE CONTACT CHAMBER:
 Volume 6200 I. Gal Detention: 30 min.

PUMPING STATION (at Plant)

2, Raw sewage pumps
 Size: 416 IGPM at 23' TDH

OUTFALL:
 500' 18" dia. pipe

GRIT REMOVAL:

Type: 2 manually cleaned channels
 Size: 1'6" x 20' x 2' swd
 Volume: 786 I. Gal. Detention: 3.8 min.

COMMINUTION:

One, type: QU250 Design: 695 IGPM

SCREENING:

Bar screen with 1/2" bars on 2' centres.

BIOLOGICAL TREATMENT

(Napane Industries Plant)
 (Contact Stabilization Plant converted to Extended Aeration)

AERATION SECTION:

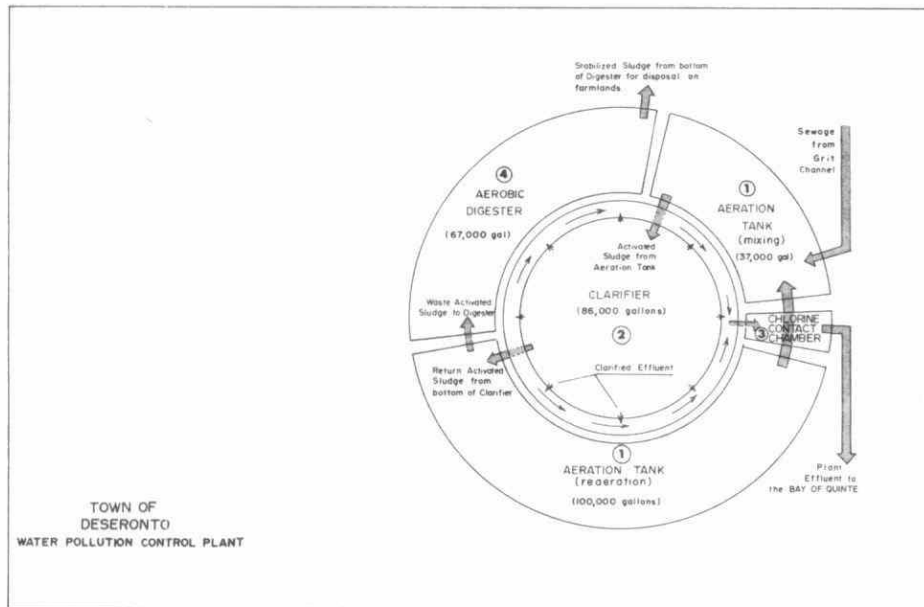
Volume: 37,400 I. Gal

REAERATION SECTION:

Volume: 99,800 I. Gal.
 Detention (as extended aeration pl^t) 11 hours

AEROBIC DIGESTER:

Volume: 67,400 I. Gal.
 Airlift - Return sludge: 350 GPM
 - Waste sludge: 210 IGPM
 Blowers: 3, SUTORBILT
 Size: 430 SCFM at 8 psi

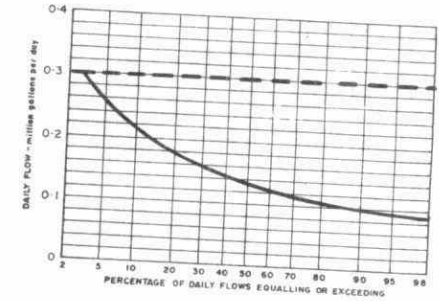
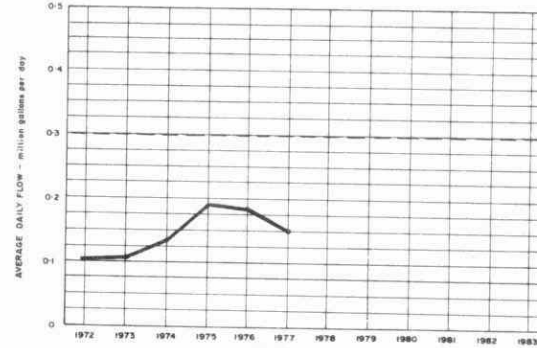


PLANT PERFORMANCE SEWAGE

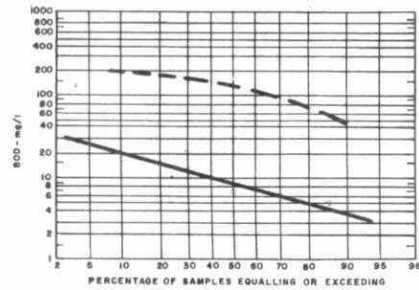
DESERONTO WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	ml. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	5.59	.12	.14	137	12	91	4.5	194	10	95	6.6	5.8	3.0
FEB	4.03	.14	.21	129	13	90	4.7	155	11	93	5.8	4.9	3.7
MAR	8.63	.28	.43	78	8	90	6.0	106	9	92	8.4	3.8	1.9
APR	4.89	.16	.28	100	5	95	4.6	145	5	97	6.8	5.1	1.9
MAY	3.74	.12	.15	452	6	99	16.7	494	6	99	18.2	6.2	4.2
JUNE	3.24	.11	.11	144	7	95	4.4	173	6	97	5.4	8.5	5.3
JULY	2.88	.09	.12	194	6	97	8.2	233	2	99	6.6	6.5	4.3
AUG	3.81	.12	.16	94	9	90	3.2	97	13	87	3.2	4.3	1.8
SEPT	3.41	.11	.20	136	6	96	4.4	145	9	94	4.6	5.4	3.7
OCT	4.25	.14	.18	143	5	97	5.9	125	5	96	5.1	6.0	2.7
NOV	5.34	.18	.23	107	10	91	5.2	85	9	89	4.1	4.3	2.4
DEC	6.43	.21	.52										
TOTAL	56.24	-	-	-	-	-	-	-	-	-	-	-	-
AVG	4.69	.15	.52	166	8	95	7.4	189	8	96	8.4	5.6	3.3
No. of Samples	-	-	-	40	40	-	-	40	40	-	-	39	39

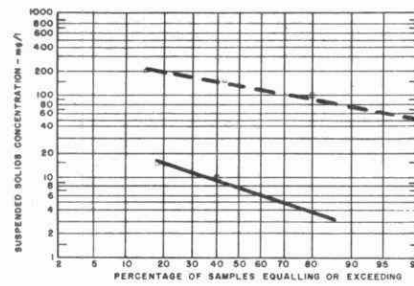
PROCESS DATA FLOWS



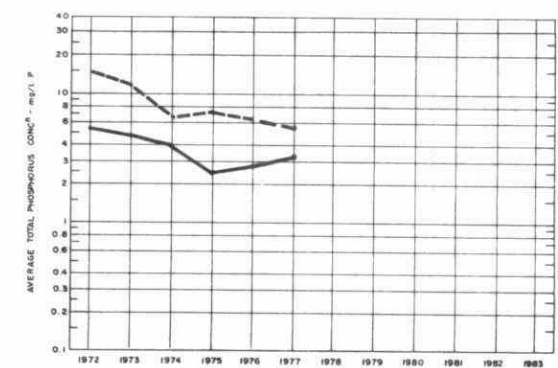
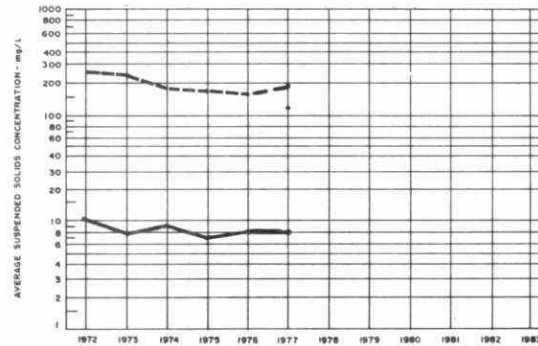
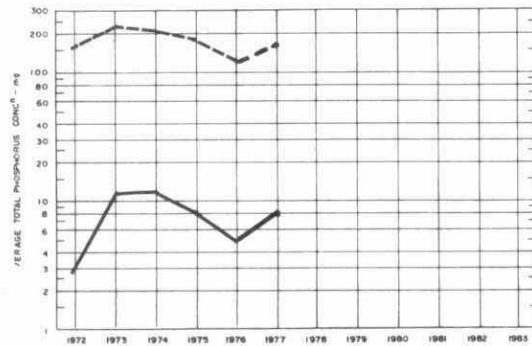
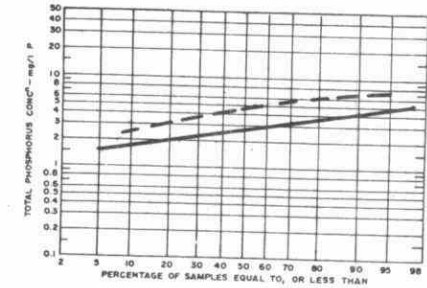
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	CL ₂ USED	AVG DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL. SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL. SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/L	mg/L	day ⁻¹	1000 ft ³ /lb BOO	10 ³ gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN	6	155	4.3	4400	.10		4.7	11000	73	20.0	13000	72	119
FEB	6	140	3.5	2200	.23		4.2						
MAR	4	155	1.8	4300	.14		5.0				19000	76	
APR	4	150	3.1	3900	.11		30.0			35.2	17000		208
MAY	6	165	4.4	5800	.25		30.0			16.2	16000	66	96
JUNE	4	150	4.6	4900	.09		30.0			30.7	18000	72	182
JULY	5	155	5.4	4600	.11		2.0				21000	60	
AUG	5	165	4.3	4400	.07		2.9			18.0	15000	68	107
SEPT	6	150	4.4	4000	.10		24.0			12.0	14000	68	71
OCT	5	155	3.6	4900	.11		9.0				14000	65	
NOV	5	150	2.8	6700	.08		44.5	5000	72				
DEC		155	2.4							45.0			267
TOTAL	56	1845	-	-	-	-	186.3	-	-	177.1	-	-	1050
AVG.	1.0 cu ft/mi gal	154	3.3	4600	.13		15.5	8000	73	14.8	16300	68	88

DESIGN DATA

PROJECT Village of Eganville
WPCP
PROJECT NO. 1-0007-66
TREATMENT Extended Aeration
DESIGN FLOW 0.168 mgd
BOD - Raw Sewage
- Domestic 182 mg/l
- Creamery 154 mg/l
Removal 80%

PRIMARY TREATMENT

Grit Removal
Type: Parallel channels, manually cleaned
Size: Two 17'4" x 1'2"

SCREENING

Type: Manually cleaned
Size: 1 1/4" openings

COMMINUTION

Type: Aer-o-Flow Type A-12

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air
Size: 83,400 gal
Retention: 12 hours

Air Supply

Type: Dresser type RAI
Size: Three-340 scfm @ 7 psi

SECONDARY SEDIMENTATION

Size: 25'8" dia x 15' (37,500 gal)
Retention: 5.3 hours
Loading: Surface 388 gal/ft²/day
Wetr: 1170 gal/ft/day

CHLORINATION

Type: Wallace & Tiernan Type 831
Size: 20 lbs/day

Chlorine Contact Chamber

Size: 3900 gal
Retention: 30 minutes

OUTFALL

OUTFALL

- to Bonnechere River

SLUDGE HANDLING

Digestion System

Type: Aerobic
Size: 56,000 gal

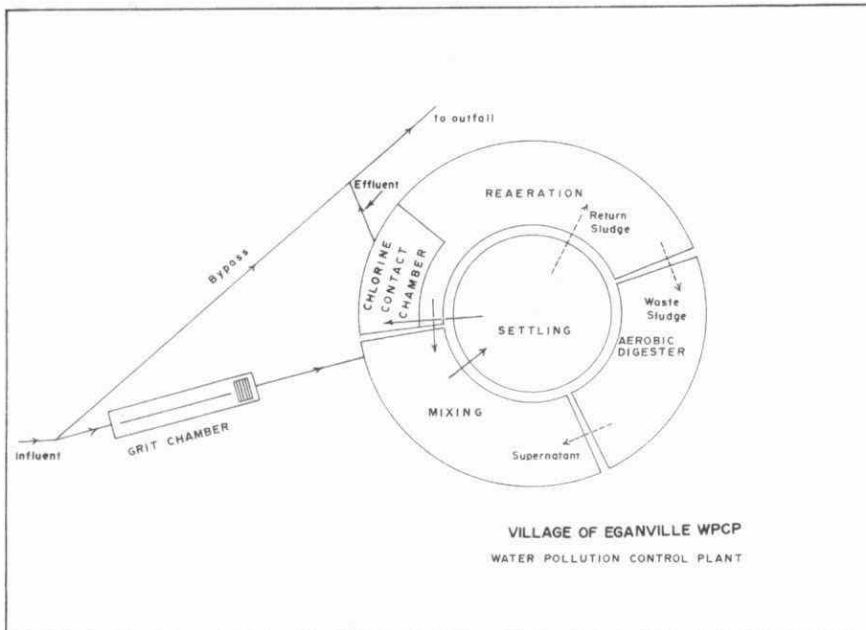
PUMPING STATIONS

North Side

Two Flygt Model CP-3100, 350 US gpm @ 35' TDH

Water Street

Two Flygt Model CP-3100, 150 US gpm @ 25' TDH

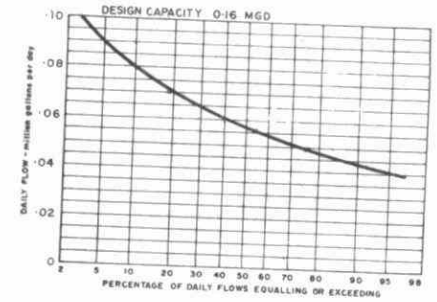
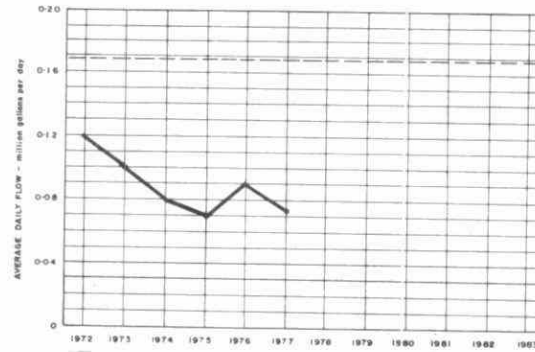


PLANT PERFORMANCE SEWAGE

EGANVILLE WPCP

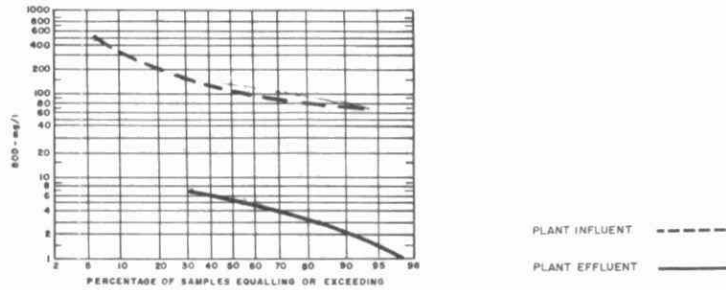
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	INFLUENT	EFFLUENT
	million gallons	mil. gal.	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P	mg/l P	mg/l P	mg/l P
JAN	2.92	.094	.11	95	5	95	2.6	98	15	85	2.4	7.0	5.0
FEB	2.64	.095	.11	430	9	98	11.1	225	15	93	5.6	11.9	6.8
MAR	3.55	.114	N/A	230	4	98	8.0	117	17	85	3.6	3.6	4.0
APR	3.75	.125	.15	129	7	95	4.2	133	20	85	3.9	6.0	4.0
MAY	2.94	.095	.08	140	6	96	3.9	135	15	89	3.5	7.3	4.9
JUNE	1.67	.056	.07	84	5	94	1.3	80	15	81	1.1	6.1	5.6
JULY	1.44	.047	.05	130	3	98	1.8	156	10	94	2.1	9.2	7.6
AUG	1.29	.041	.05	215	5	98	2.7	170	15	91	2.0	11.5	8.6
SEPT	1.47	.049	.06	107	4	96	1.5	682	15	98	9.8	7.9	6.5
OCT	1.91	.062	.08	143	8	94	2.6	187	15	92	3.3	8.6	4.1
NOV	1.86	.062	.08	88	8	91	1.5	140	8	94	2.5	7.0	4.4
DEC	1.88	.061	.09	100	6	96	1.8	310	10	97	5.6	9.2	4.7
TOTAL	27.32	-	-	-	-	-	40.1	-	-	-	53.0	-	-
AVG.	2.28	.074	.15	153	6	96	3.3	208	14	93	4.4	8.0	5.6
No. of Samples	-	-	-	35	33	-	-	35	33	-	-	34	33

PROCESS DATA FLOWS

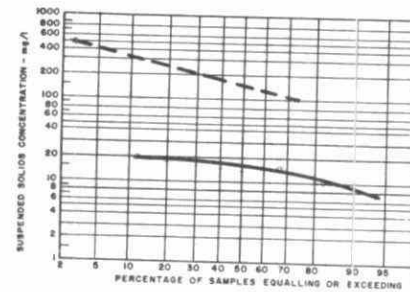


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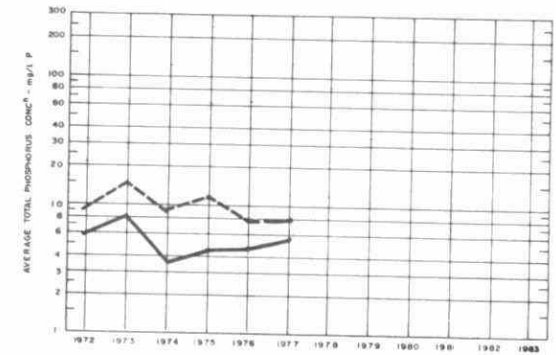
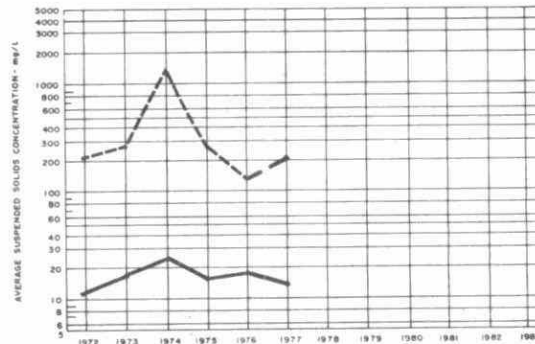
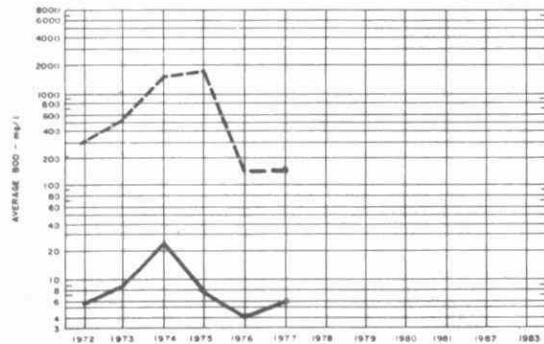
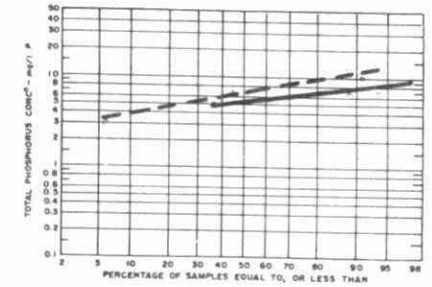
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG. DOSAGE mg/l	M.L.S.S. CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb 800	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	16	118	4.0	3900	.03			18000	25		12000	28	
FEB	9	124	4.7	4300	.11			7000	53		14000	51	
MAR	16	138	3.9	4300	.07			32000	75		49000	76	
APR	14	155	4.5	6400	.03			36000			16000		
MAY	13	160	5.4	4000	.04			5000		52.0	18000	71	309
JUNE		134	8.0	3400	.02			6000	61		15000	60	
JULY	9	125	8.6	4100	.02			8000	57		11000	65	
AUG	12	124	9.6	4700	.02			5000	35		8000	57	
SEPT	14	114	7.8	4400	.01			6000		24.0	13000		42
OCT.	15	133	7.0	5000	.02			10000	52		11000	67	
NOV	14	123	6.6	3900	.02			8000	70		22000	69	
DEC	12	151	8.0	4600	.02			8000	72		19000	70	
TOTAL	144	1599	-	-	-	-		-	-	76.0	-	-	351
AVG.	5.3 cu. ft./cu. gal	133	5.9	4400	.03			12400	56		17000	56	

DESIGN DATA

PROJECT Ernestown Twp. (Odessa) W.P.C.P.
PROJECT NO. 1-0177-68
TREATMENT Extended Aeration
DESIGN FLOW 0.2 MIGD

PUMPING STATION

Three Midland ABS Model AFP-0010 4" submersible pumps each rated at 300 IGPM @ 39' TDH with 210 mm. impeller, at 400 IGPM @ 43' TDH with 220 mm. impeller.

PRIMARY TREATMENT

Grit Removal

Two, Grit Channels 1.5' wide x 20' long with proportional weirs.

Comminution

One, BIF Waste Disintegrator

SECONDARY TREATMENT

Aeration Tank

One 70' x 30' x 15' SWD
31500 Cu. Ft. (0.196 MIG)
Loading - 13 lb. BOD/1000 Cu. Ft.
Two, 7.5 Hp lighting aerators.

Clarifier

One, 60' x 19' with upflow of 658 IGPD/ft² @ peak flow of 0.75 MIGD

CHEMICAL TREATMENT

Chlorination

Chlorine contact tank - 30 min. detention time at avg. flow, with chlorinator pump.

Phosphorus Removal

SLUDGE HANDLING

Sludge Holding Tank

1000 Cu. Ft. providing 0.5 Cu. Ft. per person served.

Ontario

PLANT PERFORMANCE
SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS			PHOSPHORUS		
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	
	million gallons	mil. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN													
FEB													
MAR													
APR				15	7	53		40	25	37		1.4	.5
MAY				36	16	55		30	23	23		2.0	.6
JUNE				10	8	20		15	15			2.3	.9
JULY				20	4	80		20	15	25		1.6	.6
AUG				70	4	94		65	15	76		4.9	1.9
SEPT				115	20	82		120	50	58		6.3	2.4
OCT													
NOV				40	11	72		75	15	80		1.7	1.1
DEC													
TOTAL		-	-	-	-	-	-	-	-	-	-	-	-
AVG.			MAXIMUM	51	11	78		55	24	56		3.2	1.2
No. of Samples	-	-	-	11	11	-	-	11	11	-	-	11	11

DESIGN DATA

PROJECT VILLAGE OF FRANKFORD

PROJECT NO. 1-0132-67
 TREATMENT
 DESIGN FLOW 0.3 mgd
 DESIGN POPULATION 3000

BOD Loading: 510 lb./day

SS Loading: 600lb./day

PUMPING STATIONS

No.1 -2 submersible pumps (1 standby)
 @ 250 Igpm and 9 hp. each.

No.2 -2 submersible pumps (1 standby)
 @ 85 Igpm and 2½ hp. each.

No.3 -2 submersible pumps @ 200 Igpm
 and 7½ hp. each.

PRETREATMENT

Grit Removal

2 channels 24' X 2' X 3' deep each

Comminution

One 3/8" mechanically cleaned
 comminutor rated at 1.67 mgd.

SECONDARY TREATMENT

Aeration Tank

Mixing Volume: 4144 ft.³
 Reaeration Volume: 10,487 ft.³

Clarifier

Volume: 15,635 ft.³

Air Supply:

2 blowers @ 61 hp.

TERTIARY TREATMENT

Phosphorous Removal

5000 gal. storage tank.

SLUDGE TREATMENT

Aerobic Digester

Two compartments 12,032 ft.³

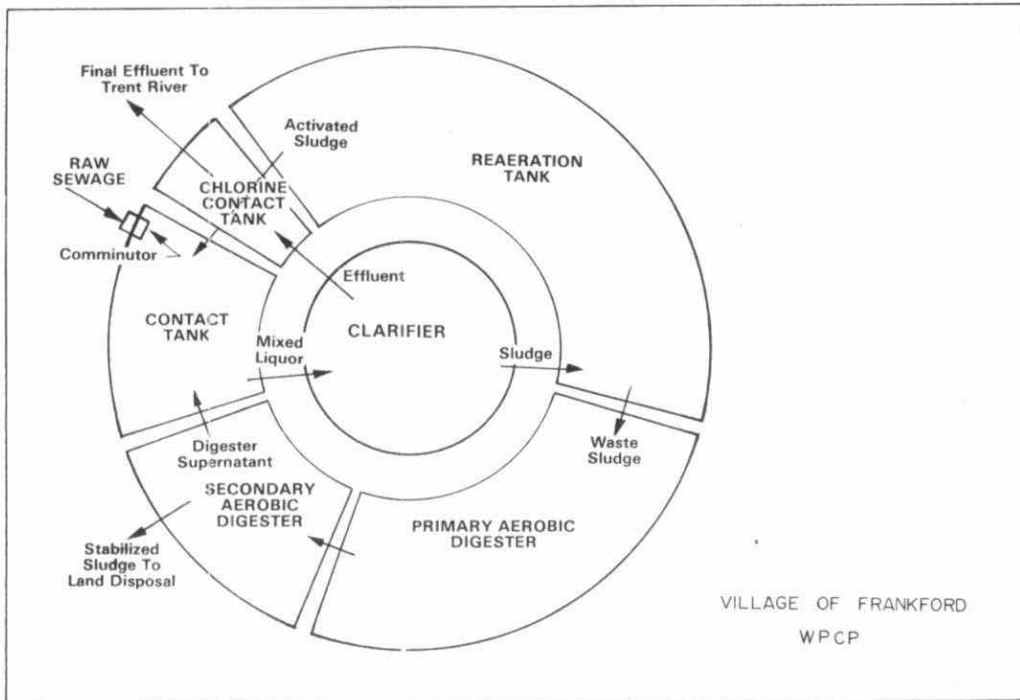
CHLORINATION

Chlorine Contact Chamber

Volume: 1200 ft.³

OUTFALL

To Trent River.

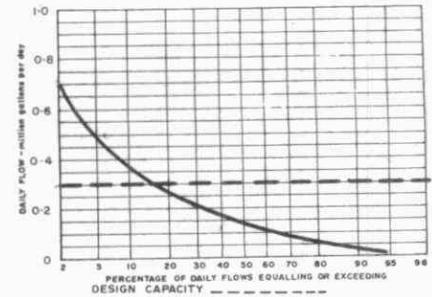
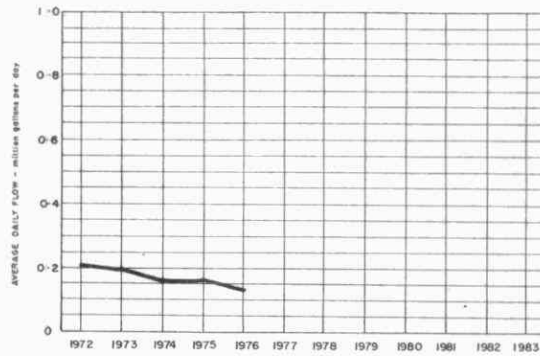


SEWAGE

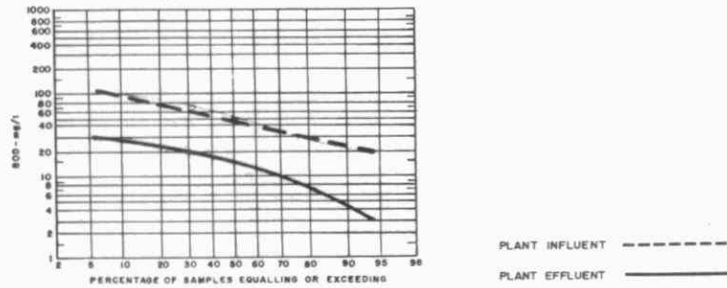
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN				80	20	75		80	30	63		1.0	1.0
FEB				75	25	67		95	40	58		5.1	1.1
MAR				31	16	48		32	40			4.7	1.0
APR				45	5	89		15	25			4.8	5.4
MAY				68	4	94		35	15	57		4.9	.1
JUNE				55	19	65		118	35	70		5.0	1.0
JULY				81	20	75		98	38	61		5.1	1.0
AUG				68	16	74		73	25	66		5.0	1.0
SEPT				75	23	69		140	55	61		4.9	1.2
OCT				33	15	55		48	20	58		3.5	.6
NOV				60	8	87		90	45	50		4.9	1.0
DEC				40	8	80		50	45	10		4.9	1.7
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-
AVG.			MAXIMUM	58	14	76		74	34	54		4.4	1.2
No. of Samples	-	-	-	18	18	-	-	18	18	-	-	300	258

FRANKFORD WPCP

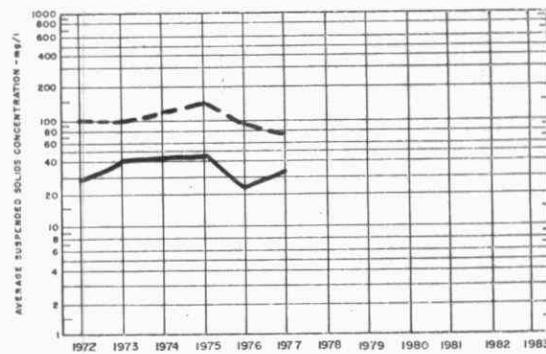
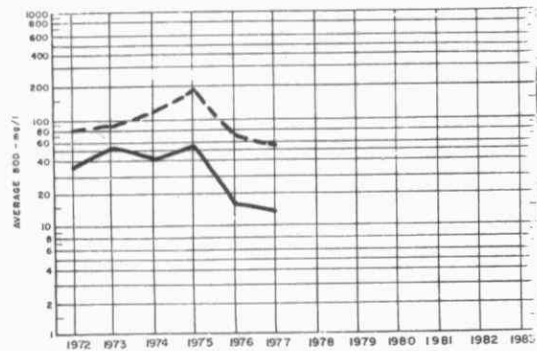
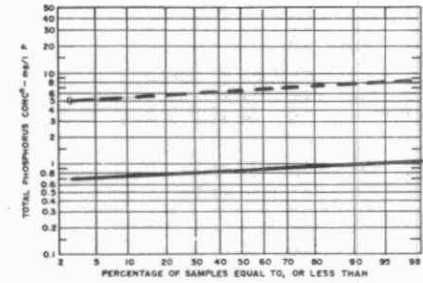
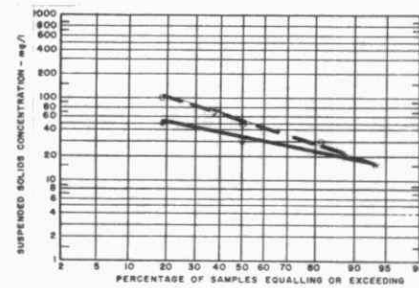
FLOWS



BOD₅



Susp. Solids



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	Cl ₂ USED	AVG. DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/L	mg/L	day ⁻¹	1000 ft ³ lb/800	10 gallons	mg/L	%	10 gallons	mg/L	%	cubic yards
JAN		130		1400									
FEB	3	300		1500									
MAR		460		1600									
APR	3	336		1700									
MAY	3	297		2000									
JUNE	3	257		2800									
JULY		322		3100									
AUG	3	197		1900									
SEPT	3	279		1100									
OCT		426		1300									
NOV	3	263		1300									
DEC		396		1500									
TOTAL	21	3663	-	-	-	-	-	-	-	-	-	-	-
AVG.	cu. ft./mi ³ gal	305		1800									

DESIGN DATA

PROJECT: L'Original WPCP

PROJECT NO. 1-0025-66

TREATMENT: Extended Aeration

DESIGN FLOW: 1.90 MIGD

BOD - Raw Sewage - 200 mg/l
- Effluent - 15 mg/l

SS - Raw Sewage - 250 mg/l
- Effluent - 15 mg/l

SLUDGE HOLDING TANK
Volume: 6550 I.G.

CHLORINATION TANK
Volume: 4370 I.G.
Retention: 33 min

CHLORINATOR
Type: One, W and T V800
Size: 50 lb/day

PUMPING STATION

Pumps: Two, each 475 gpm @ 72' TDH

GRIT CHANNELS

Size: each 1.5'x16'x1'wd
Volume(each): 150 I.G.
Retention(each): 1.1 min

COMMINUTOR

Size: One 10-inch

AERATION TANK

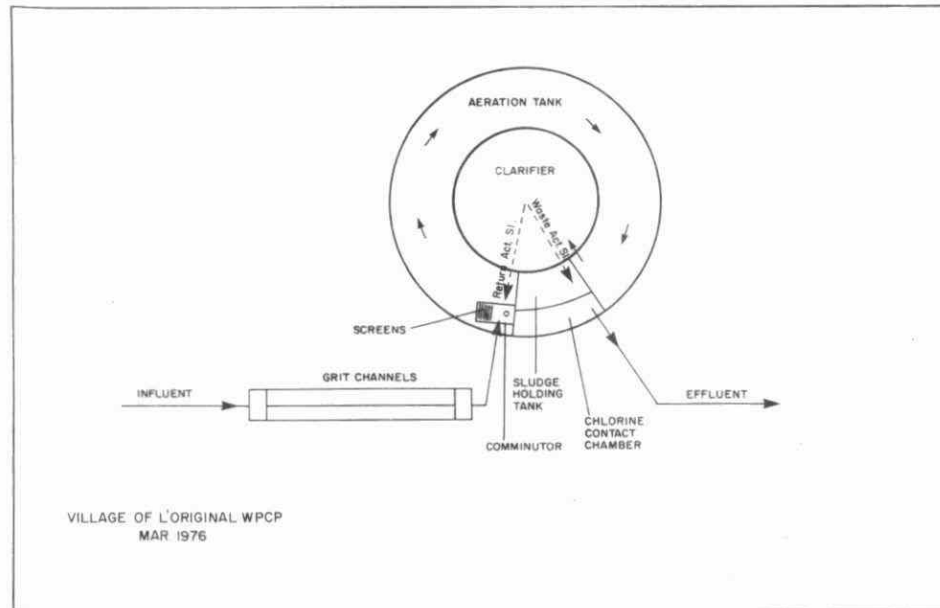
Volume: 125,500 I.G.
Retention: 15.9 hr

BLOWERS

Type: Three Roots 76 RAL
Size: Each 1080 cfm @ 7 psi

CLARIFIER

Size: 30' i.d.
Volume: 66,400 I.G.
Loading: Surface 269 IG/ft²/day
Weir 2021 IG/ft/day
Retention: 8.4 hr

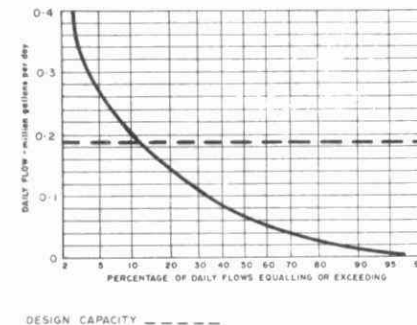
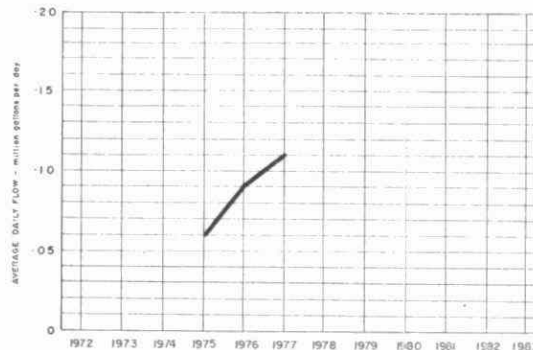


PLANT PERFORMANCE SEWAGE

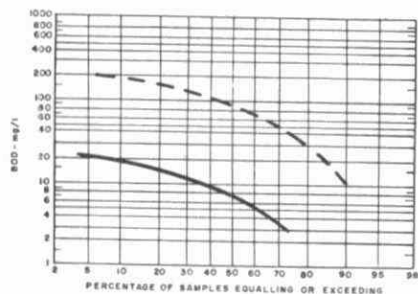
L'ORIGINAL WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT		
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	1.26	.063	.116	160	16	90	1.8	208	16	92	2.4		
FEB	.63	.034	.081	108	10	91	.6	125	25	80	.6	7.0	4.5
MAR	6.67	.215	.573	124	2	98	8.1	121	11	91	7.3		
APR	7.65	.255	.329										
MAY	2.14	.102	.109	79	5	94	1.6	95	13	86	1.8	11.0	4.4
JUNE	2.36	.079	.124	700	5	99	16.4	291	16	95	6.5	32.0	6.0
JULY	2.63	.139	.204	130	5	96	3.3	155	15	90	3.7	7.1	5.7
AUG	1.99	.095	.592	183	12	93	3.4	233	19	92	4.2	21.5	7.6
SEPT	2.72	.090	.227	57	10	82	1.3	138	12	91	3.4	10.8	5.3
OCT	4.35	.140	.288	90	6	93	3.7	160	13	92	6.4	6.0	3.3
NOV	4.37	.146	.500	7					8				
DEC	2.88	.093	.500	44	8	82	1.0	85	17	80	2.0	6.3	1.7
TOTAL	39.65	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	3.30	.109	MAXIMUM .592	110	8	93	3.4	173	15	91	5.2	11.4	4.7
No. of Samples	-	-	-	32	27	-	-	37	51	-	-	11	11

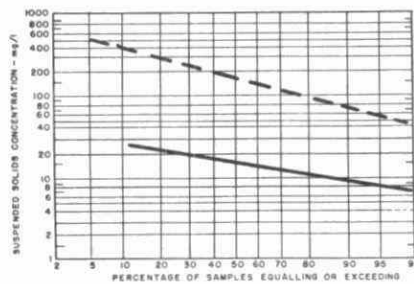
FLOWS



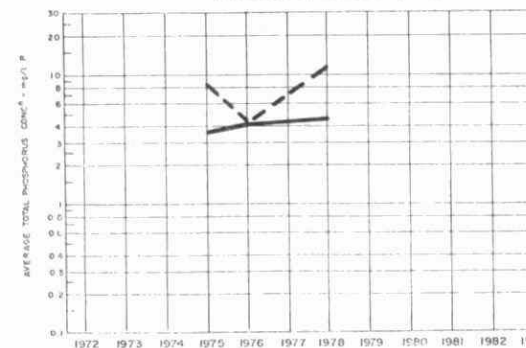
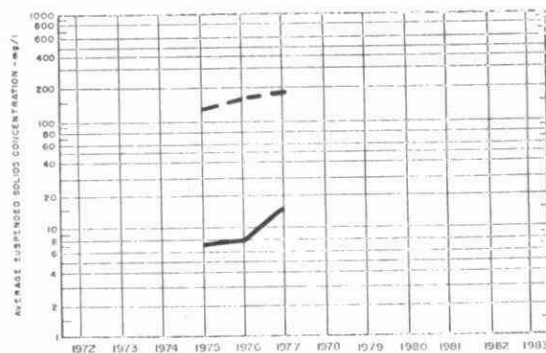
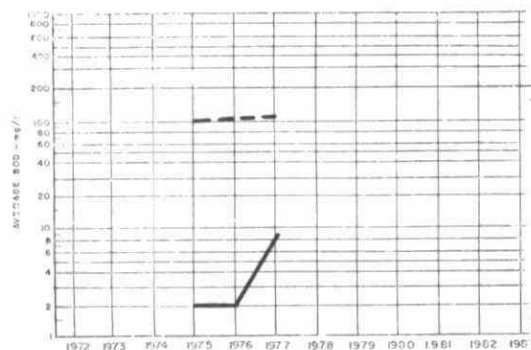
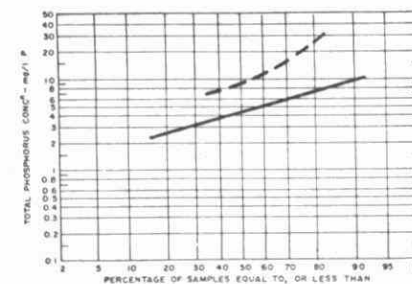
B O D



SUSPENDED SOLIDS



PHOS



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	CL ₂ USED pounds	AVG DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAILED cubic yards
JAN		131	10.4	6600	.010	5.5		8000	69				
FEB		123	19.6	7200	.004	14.7		9000	73				
MAR	6	160	2.4	3700	.060			9000	74				
APR		151	2.0	3200				4000	78				
MAY	24	122	5.7	3600	.020	6.6		4000	77				
JUNE	30	89	3.8	4300	.100	.9		6000	73				
JULY	24	148	5.6	4900	.030	2.9		6000	75				
AUG	138	187	9.4	5000	.030	3.1		6000	72				
SEPT	36	172	6.3	5200	.010	11.9		7000	73				
OCT	24	115	2.6	4000	.030	3.7		5000	76				
NOV	84	120	2.7	4400	.003			5000	75				
DEC	30	140	4.9	3100	.010	14.7		4000	76				
TOTAL	396	1658	-	-	-	-		-	-				
AVG.	1.0 cu. ft./mi gal	138	4.2	4600	.028	7.1		6100	74				

DESIGN DATA

PROJECT: Village of Marmora WPCP

PROJECT NO: 1-0050-66

TREATMENT: Extended Aeration

DESIGN FLOW: 0.191 mgd
(0.334 mgd operated
as step-aeration)

PUMPING STATION

Type: Three, Midland AFP-0010
Size: each 450 usgpm @ 41' TDH

GRIT CHANNELS

(at circumference of plant)
Size: Two, each 20' x 1.5' x 0.5' awd
Volume: (each) 94 IG
Retention: (each) 0.7 min

COMMINUTOR

Type: Jones and Atwood 10 R

AERATION TANK 1

Volume: 89,600 I.G.
Retention: 11.2 hr

AERATION TANK 2

Volume: 111,250 I.G.
Retention: 14.0 hr

BLOWERS

Type: Two, Sutorbilt 711-4500

CLARIFIER

Size: 26.8' i.d. x 11.5' awd
Volume: 35188 I.G.
Retention: 4.4 hr
Loading:
- Surface
- Weir

SLUDGE PUMP

Type: One, Midland AFP-4
Size: 425 usgpm

CHLORINE CONTACT CHAMBER

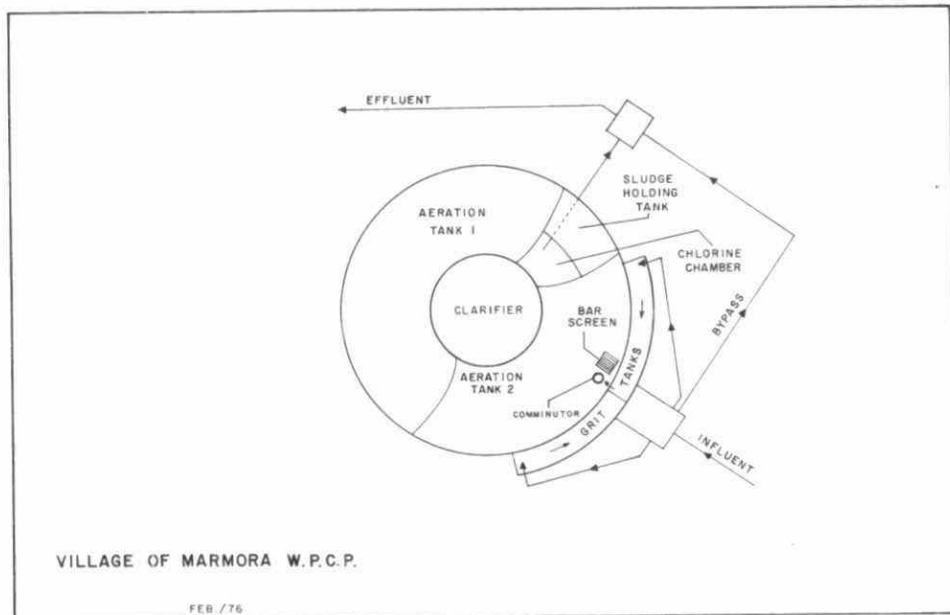
Volume: 9100 I.G.
Retention: 1.1 hr

CHLORINATOR

Type: One F and P 70c

SLUDGE HOLDING TANK

12,500 I.G.

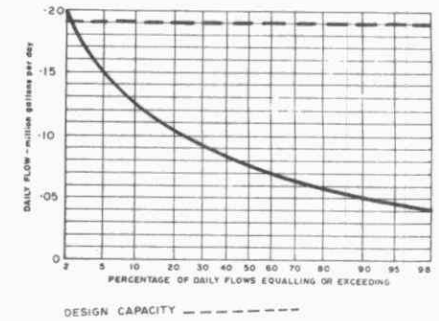
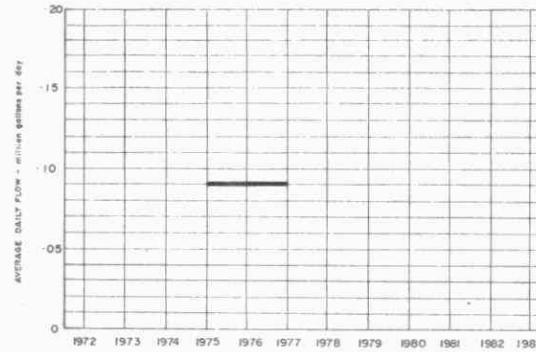


PLANT PERFORMANCE
SEWAGE

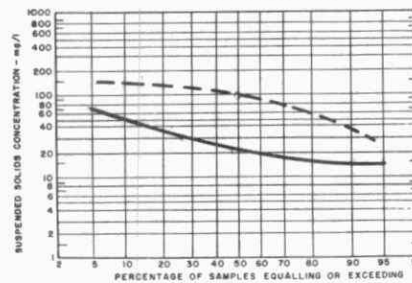
MARMORA WPC P

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	mg/l P	mg/l P
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds		
JAN	1.77	.057	.059	115	26	77	1.6	135	43	68	1.6	4.4	.9
FEB	1.76	.063	.084	108	13	88	1.7	108	45	58	1.1	3.3	1.2
MAR	5.20	.168	.316	80	15	81	3.4					1.7	.2
APR	3.00	.100	.162	75	2	97	2.2	70	15	79	1.7	2.4	.2
MAY	2.21	.071	.090	142	15	89	2.8	110	25	77	1.9	3.1	.4
JUNE	1.76	.059	.086	30	9	70	.4	40	40	0	0	2.0	.6
JULY	1.74	.056	.074	148	5	97	2.5	110	20	82	1.6	3.6	.7
AUG	2.42	.078	.125	83	12	86	1.7	93	15	84	1.9	2.5	.3
SEPT	2.35	.078	.100	64	10	84	1.3	80	15	81	1.5	2.9	.3
OCT	2.75	.089	.131	110	8	93	2.8	130	15	88	3.2	2.2	.1
NOV	2.66	.088	.123	110	8	93	2.7	140	15	89	3.3	2.2	.3
DEC	3.59	.116	.193	42	12	71	1.1	50	25	50	.9	2.1	.2
TOTAL	31.21	-	-	-	-	-	25.0	-	-	-	-	-	-
AVG.		.086	.316	92	12	87	2.1	96	25	74	2.0	2.7	.5
No. of Samples	-	-	-	18	18	-	-	17	18	-	-	103	103

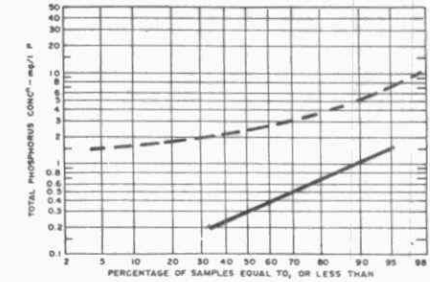
FLOWS



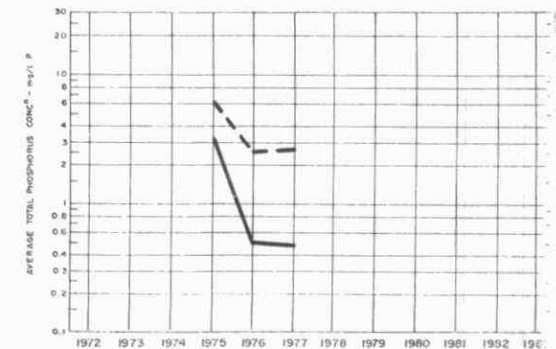
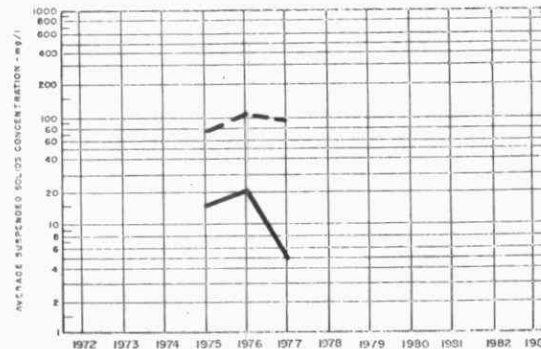
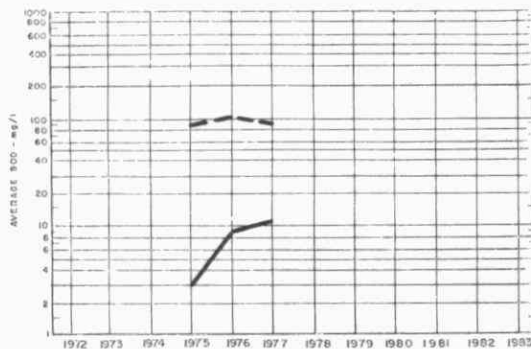
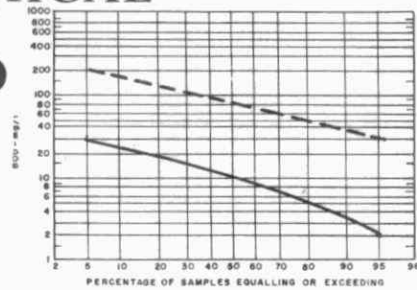
SUSPENDED SOLIDS



PHOSPHORUS



BIOCHEMICAL OXYGEN DEMAND



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
		Cl ₂ USED DO dosage pounds	AVG DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb 800	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN		310	17.6	7900	.010			9000					
FEB		280	15.9	4800	.020			8000		3.5	2.0	50	21
MAR		284	5.5	6000	.020			8700					
APR		143	4.8	7800	.010			8500					
MAY		310	14.0	3000	.040			5300					
JUNE		216	12.3	5400	.004			5700					
JULY		186	10.7	4200	.010			4000					
AUG		224	9.2	3300	.020			5000					
SEPT		192	8.2	5800	.010			7000		24.8			147
OCT		177	6.4	4100	.030			7000					
NOV		216	8.1	3800	.030			5000					
DEC		288	8.0	4500	.010			4800					
TOTAL		2826	-	-	-	-	-	-	-	28.3	-	-	168
AVG	cu ft/mi gal	236	9.1	5100	.018			6500		14.2	2.0	50	

DESIGN DATA

Project: Village of Merrickville
WPCP

Project No: 1-0019-66

Treatment: Extended Aeration

Design Flow: 0.110 M.I.G.D.

BOD - Raw Sewage - 250 mg/l
- Removal 95%

SS - Raw Sewage - 250 mg/l
- Removal 95%

Sewage Pumps (at P.S.)

Size: Two, each 140 I.G.P.M. @ 50' TDH
One, 240 I.G.P.M. @ 50' TDH

Comminutor:

Type: One, CONDUX Mod 150

Grit Chamber

(at circumference of
aeration tank)

Size: One, 20' x 1.2' x 1.2'
(180 I.G.)
Retention: 2.3 min

Aeration Tank

Type: One, circular
Size: 42' x id x 14' awd
(121,000 I.G.)
Retention: 26.4 hr

Aeration: spargers with
rotor

Blowers

Type: Two, SUTORBILT
Size: 265 cfm @ 4.5 psi

Clarifier

Type: One, circular
Size: 20' i.d. x 9' awd
17,600 I.G.
Retention: 3.8 hr
Loadings - Weir: 1930 I.G./ft/day
- Surface: 350 I.G./ft²/day

Chlorination Tank

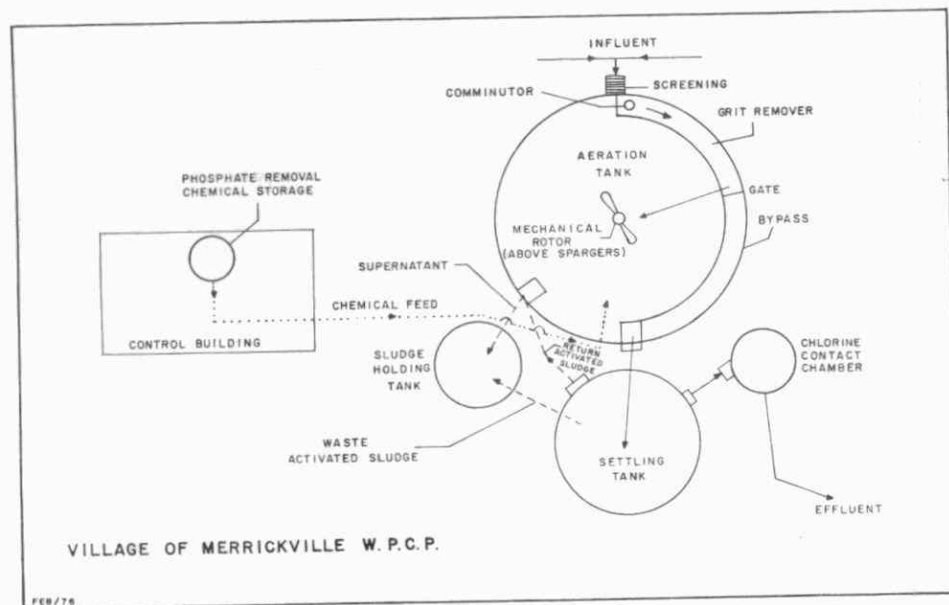
Type: One, circular
Size: 7.5' i.d. x 9' awd
2480 I.G.
Retention: 32 min

Chlorinator

Type: One, W and T Mod V800

Sludge Holding Tank

Type: One, circular
Size: 11' i.d. x 13' awd
7710 I.G.



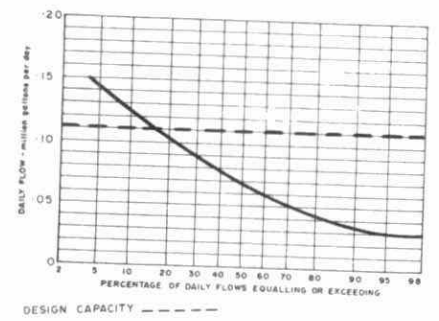
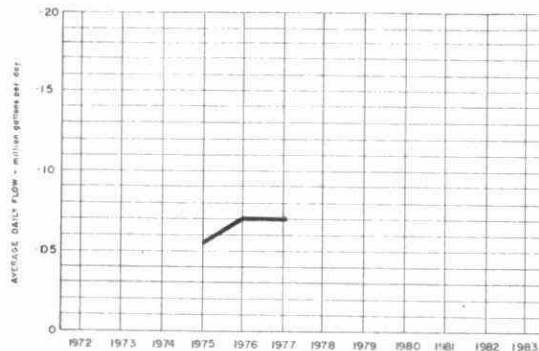
PLANT PERFORMANCE

SEWAGE

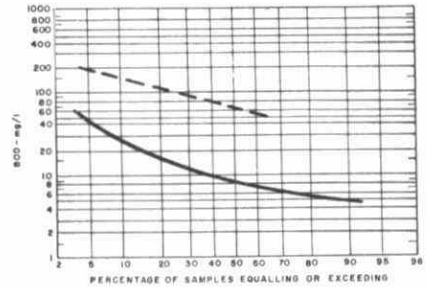
MERRICKVILLE WPCP

FLOWS

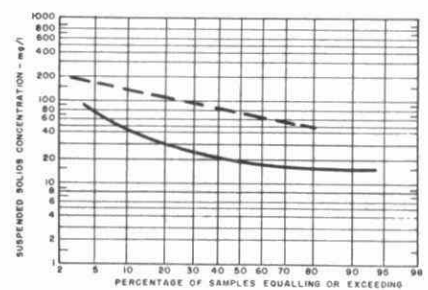
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mgd	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN	1.20	.038	.065	110	12	89	1.2	94	21	78	.9	6.5	.8
FEB	1.46	.052	.093	125	8	94	1.7	103	18	83	1.2	7.9	.8
MAR	4.03	.130	.153	50	3	94	1.9	35	15	57	.8	5.0	.8
APR	3.88	.129	.158	46	4	91	1.6	60	15	75	1.7	3.5	.8
MAY	2.77	.089	.190	38	16	58	.6	40	15	63	.7	3.5	.8
JUNE	1.58	.053	.071	60	3	95	.9	83	15	82	1.1	6.6	.7
JULY	1.50	.048	.056	60	9	85	.8	85	15	82	1.0	7.4	.9
AUG	1.47	.047	.066	152	8	95	2.1	109	15	86	1.4	9.7	.7
SEPT	1.27	.042	.059	105	12	89	1.2	110	15	86	1.2	8.9	.4
OCT	2.13	.069	.093	212	7	97	4.3	692	26	96	14.1	12.4	.6
NOV	2.03	.067	.102	78	9	88	1.4	74	19	74	1.1	5.4	1.0
DEC	3.21	.076	.169	60	7	88	1.3	87	40	54	1.1	5.7	1.4
TOTAL	26.53	-	-	-	-	-	23.8	-	-	-	39.3	-	-
AVG	2.21	.070	MAXIMUM .153	101	8	92	2.0	169	21	88	3.3	7.4	.8
No. of Samples	-	-	-	27	27	-	-	28	28	-	-	30	28



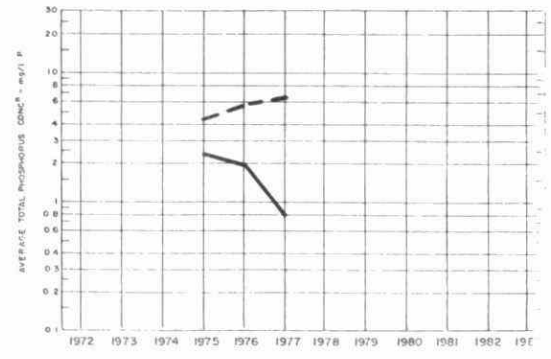
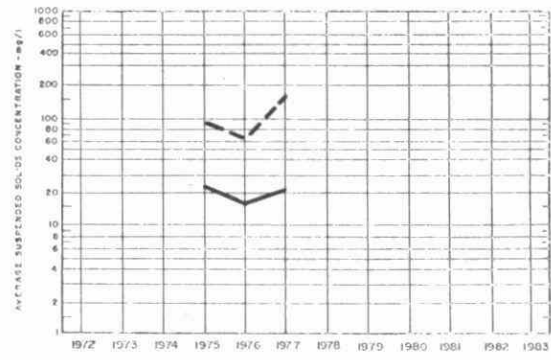
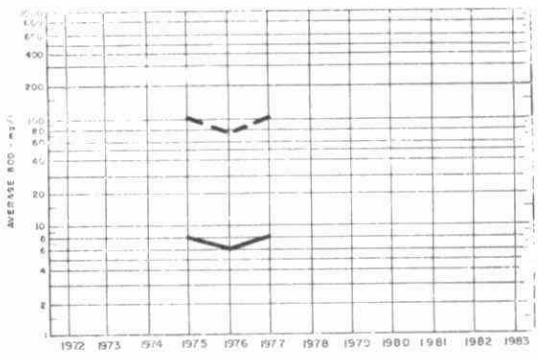
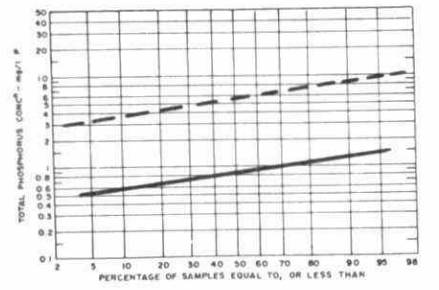
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	CL ₂ USED pounds	AVG DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	2	62	5.2	4200	.010			6000	61				
FEB		56	3.8	4800	.010			6000	40				
MAR		79	2.0	4200	.010			6000	58				
APR		85	2.2	4000	.010			5000		1000	42		
MAY	3	93	3.4	4900	.010			6000	60	14000	50		
JUNE		90	5.7	4800	.010			7000	54	14000	56		
JULY	3	93	6.2	5400	.004			6000	60	11000	56		
AUG		93	6.3	4800	.010			4000	54				
SEPT		90	7.1	5200	.006					10.0	13000	54	59
OCT	3	93	4.4	5900	.010			11000	56		18000	55	
NOV		90	4.4	4400	.010			5000	52	20.0			119
DEC		93	3.9	3300	.010			4300	56		12000	52	
TOTAL	11	1017	-	-	-	-	-	-	-	15.0	-	-	178
AVG.	0.4 cu ft/mil gal	85	4.0	4700	.009			6000	42		11900	30	

DESIGN DATA

PROJECT Pittsburgh Twp (Cana)

PROJECT NO. 2-0288-70
TREATMENT Extended Aeration

DESIGN FLOW 0.025 MGD

DESIGN POPULATION 250

INFLUENT BOD 190 mg/l
SS 220 mg/l

EFFLUENT BOD 11 mg/l
SS 15 mg/l

PRIMARY TREATMENT

Bar screen and comminutor (Future)

SECONDARY TREATMENT

Aeration Tank:
Volume: 2150 ft³
Loading: 13 lb. BOD/day/1000 ft³
Detention: 21 Hours
Blowers: 2 providing 130 cfm @ 3.5 psi.

Secondary Sedimentation:
Volume: 400 ft³
Detention: 4 hours
Loading: Surface, 300 gal/ft²/day

SLUDGE HANDLING

Digestion System
Type: Aerobic
Volume: 1000 ft.³

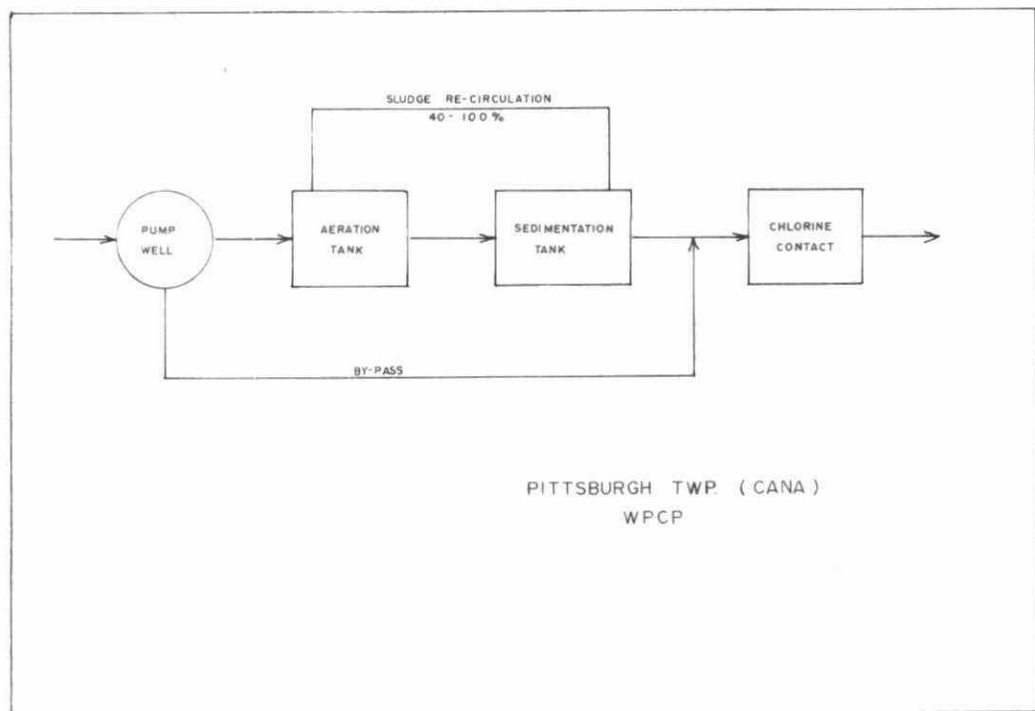
CHLORINATION

Retention: 30 minutes

Pumping Station #1
2 pumps @ 100 IGPM @

Outfall

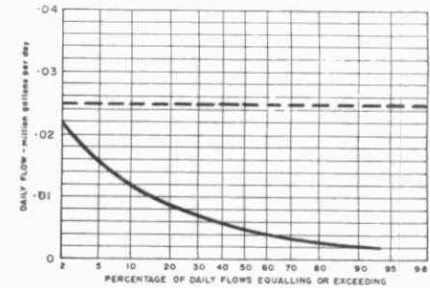
To Rideau Canal (Catarqui River).



SEWAGE

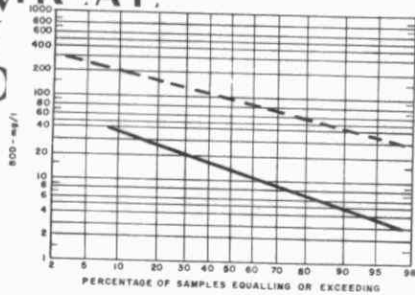
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN.	.158	.005	.008	89	19	79	110	91	58	52	36	3.4	4.2
FEB.	.135	.006	.010	85	4	95	109	92	34	63	85	4.6	1.8
MAR.	.320	.010	.019	45	28	38	54	55	33	40	70	3.0	2.1
APR.	.170	.006	.009	35	25	43	25	41	22	46	32	1.4	2.4
MAY.	.208	.007	.009	119	29	76	187	98	20	80	162	4.0	3.2
JUNE.	.112	.004	.009	180	6	97	195	206	19	91	209	8.3	3.4
JULY.	.068	.002	.006	200	7	97	131	270	15	96	177	10.6	4.9
AUG.	.111	.004	.020	159	19	88	155	139	17	88	135	12.0	6.4
SEPT.	.109	.004	.008	203	10	95	210	195	21	89	190	11.3	4.0
OCT.	.221	.007	.013	41	11	73	66	155	18	88	303	2.9	2.3
NOV.	.288	.010	.022	80	12	85	196	62	15	76	135	2.6	1.9
DEC.	.333	.011	.024	66	10	85	186	74	16	78	193	3.3	2.0
TOTAL	2.233	-	-	-	-	-	2322	-	-	-	2389	-	-
AVG.	.186	.006	MAXIMUM .024	119	15	87	194	131	24	82	199	5.8	3.2
No. of Samples	-	-	-	39	39	-	-	53	54	-	-	27	28

FLOWS



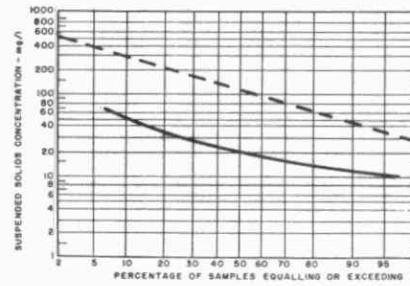
DESIGN CAPACITY -----

BIOCHEMICAL OXYGEN DEMAND

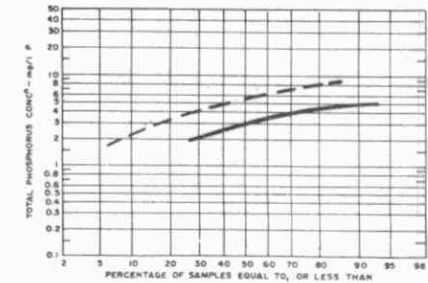


PLANT INFLUENT -----
PLANT EFFLUENT _____

SUSPENDED SOLIDS



PHOSPHORUS



TREATMENT DATA

MONTH	GRIT		CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	Cl ₂ USED	AVG DOSAGE	M.L.S.S. CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED	
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ lb BOD	10 gallons	mg/l	%	10 gallons	mg/l	%	cubic yards	
JAN		25	15.8	4400	.004			8000	66					
FEB		12	8.9	4700	.010			6000	70					
MAR				550	.030			600	34					
APR				3700	.003			2300	30					
MAY		14	6.7	250	.150			1000	23					
JUNE		24	21.4	3000	.010			4000	59					
JULY		5	7.4	3500	.005			6000						
AUG		5	4.5	4100	.007			7000						
SEPT		17	15.6	4400	.010			6000						
OCT		38	17.2	3900	.001			6000						
NOV		31	10.8	4000	.010			7000						
DEC		40	12.0	2800	.010			5000						
TOTAL		211	-	-	-	-		-	-					
AVG.	cc ft/m ³ gal	21	12.1	3300	.021			4900	47					



REGION 5
Northeastern

DESIGN DATA

PROJECT Town of Matheson WPCP
 PROJECT NO. 1-0150-68
 TREATMENT Extended Aeration
 DESIGN FLOW 0.15 MGD

PRETREATMENT

GRIT REMOVAL
 2 grit channels 2' x 16' each
 Total Volume: 13 cu. ft.
 Retention: 2 weeks

COMMUNICATOR

10" Cord Model 10A. 1.0 h. p.

CHLORINATION

CHLORINE CONTACT TANK
 Volume: 4673 gal.
 Retention: 45 min.

SEWAGE PUMPING STATIONS

- No. 1 Two (2) submersible pumps 100 gpm
 @ 32.5' T.D.H.
 No. 2 Two (2) submersible pumps 460 gpm
 @ 37.0' T.D.H.
 No. 3 Two (2) submersible pumps 100 gpm
 @ 39.0 T.D.H.

SECONDARY TREATMENT

AERATION

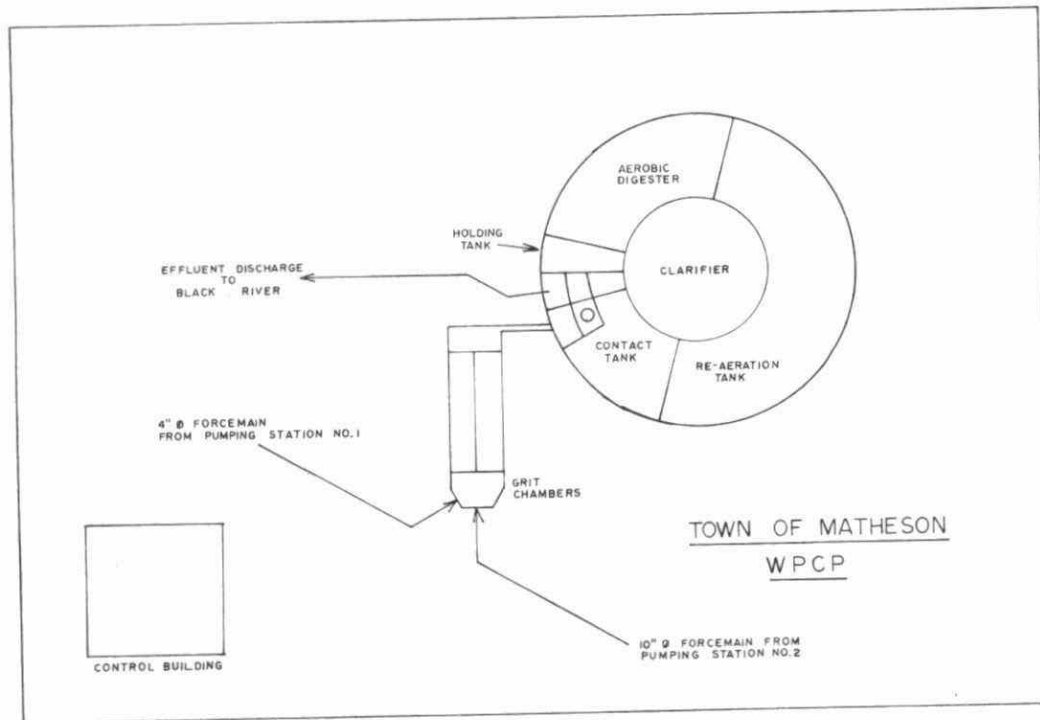
Contact Tank Volume: 33,154 gal.
 Retention: 3.5 hrs.
 Reaeration Tank Volume: 86,914 gal.
 Retention: 9.1 hrs.
 Aerobic Digester Volume: 79,257 gal.
Retention: 14.4 hrs.
 Total Aeration Volume: 169,325 gal.
 Retention: 27 hrs.

AIR SUPPLY

2 blowers delivering 1500 cfm
 Motors: 75 h. p. @ 3560 r. p. m. 60A.

CLARIFIER

Size: 30' dia. x 18.5 avg. SWD
 Volume: 81,500 gal.
 Loading: Surface = 212 IG/ft²/day
 Weir = 1595 IG/ft²/day



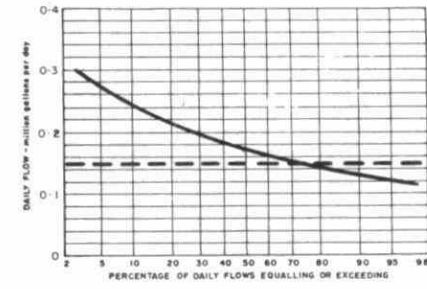
PLANT PERFORMANCE

MATHESON WPCP

SEWAGE

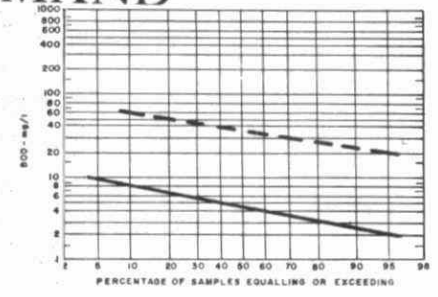
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	4.1	.13	.15	35	6	83	1.2	49	11	78	1.6	11.2	1.8
FEB	3.9	.14	.16	60	5	92	2.1	76	11	86	2.5	4.7	1.7
MAR	6.0	.19	.34	41	4	90	2.2	82	10	88	4.3	3.2	1.1
APR	6.7	.23	.41	24	3	88	1.4	48	9	81	2.6	2.2	1.0
MAY	4.9	.16	.18	39	4	90	1.7	81	8	90	3.6	2.6	2.1
JUNE	4.6	.15	.19	32	8	75	1.1	39	12	69	1.4	3.2	1.4
JULY	5.0	.16	.28	29	4	86	1.3	35	7	80	1.4	2.2	1.6
AUG	4.5	.15	.21	29	2	93	1.2	36	5	86	1.4	2.3	1.4
SEPT	6.1	.20	.32	31	5	84	1.6	50	18	64	2.0	2.2	1.7
OCT	6.1	.20	.21	32	3	91	1.8	58	12	79	2.8	3.5	1.9
NOV	7.4	.25	.39	47	3	94	3.2	86	11	87	5.6	2.9	1.2
DEC	6.6	.21	.27	52	4	92	3.2	95	12	87	5.5	3.0	1.5
TOTAL	65.9	-	-	-	-	-	22.4	-	-	-	33.6	-	-
AVG.	5.5	.18	MAXIMUM .41	38	4	89	1.9	61	10	84	2.8	2.4	1.5
No. of Samples	-	-	-	25	25	-	-	25	24	-	-	25	25

FLOWS



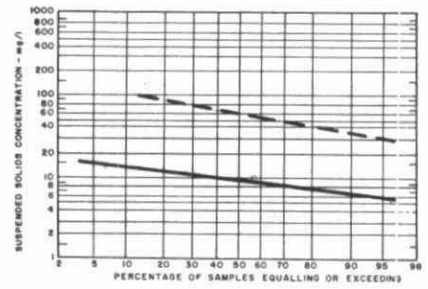
DESIGN CAPACITY -----

BIOCHEMICAL OXYGEN DEMAND

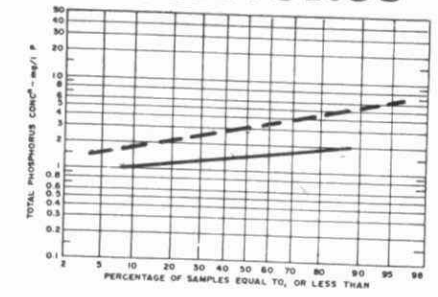


PLANT INFLUENT -----
PLANT EFFLUENT -----

SUSPENDED SOLIDS



PHOSPHORUS



TREATMENT DATA

MONTH	GRIT		CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	CL ₂ USED	AVG. DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED	
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ lb BOD	10 gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards	
JAN	12			3000	.01	56.8		3000						
FEB	4			3400	.01	16.3		5000						
MAR	3			3300	.01	17.2		15000						
APR	10			4800	.01	26.5		7000						
MAY				3800	.01	24.1		6000						
JUNE	7	132	2.9	4000	.01	37.8		7000						
JULY		160	3.2	3900	.01	35.0		5000						
AUG		101	2.2	3800	.01	35.6		6000						
SEPT	8	109	1.8	3900	.01	21.7		6000						
OCT		109	1.8	4800	.01	26.7		5000		4.0			24	
NOV	8			4500	.02	13.9		7000		4.0			24	
DEC	3			4800	.01	13.4		7000		6.1			36	
TOTAL	55	611	-	-	-	-		-	-	14.1	-	-	84	
AVG.	0.8 cu. ft/mi gal	122	2.3	4000	.01	27.1		7000						

DESIGN DATA

Project: Chelmsford WPCP
 Project No: 2-1004-73
 Design Flow: 1.2 MGD
 Treatment: Extended Aeration
 (built as Contact Stabilization)

GRIT REMOVAL
 Type: Grit channels

BIOLOGICAL TREATMENT
 One of two identical units described
 hereunder

CONTACT CHAMBER
 Volume: 21,500 I.G.
 Retention: 0.86 hr

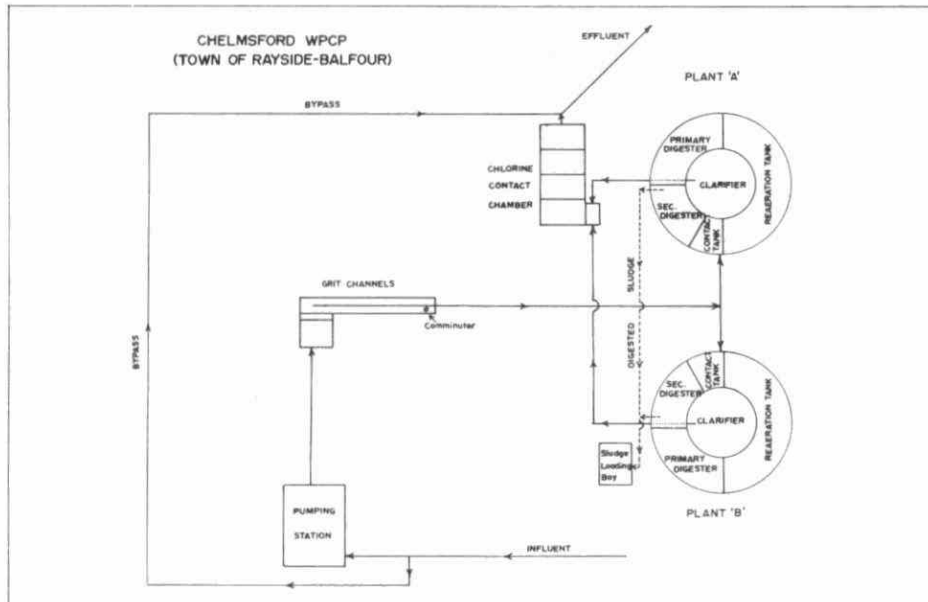
RE-AERATION CHAMBER
 Volume: 156,000 I.G.
 Retention: 6.2 hr

CLARIFIER
 Volume: 164,000 I.G.
 Retention: 6.6 hr

AEROBIC DIGESTER NO. 1
 Volume: 65,500 I.G.

AEROBIC DIGESTER NO. 2
 Volume: 65,500 I.G.

CHLORINE CONTACT CHAMBER
 Common to both plants
 Volume: 30,000 I.G.
 Retention: 36 min

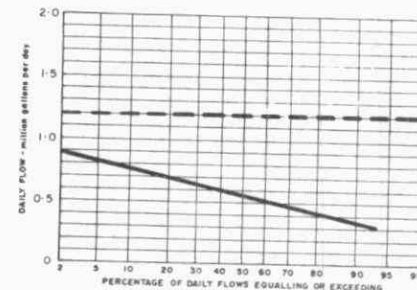
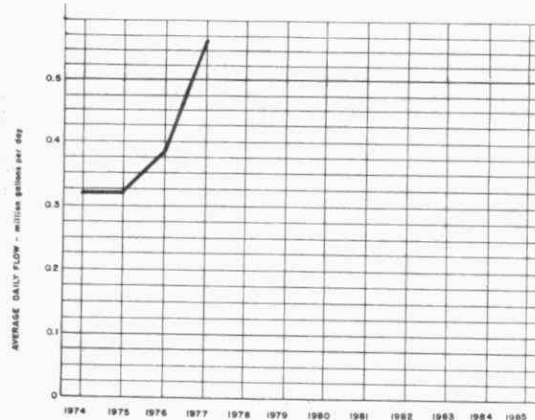


PLANT PERFORMANCE SEWAGE

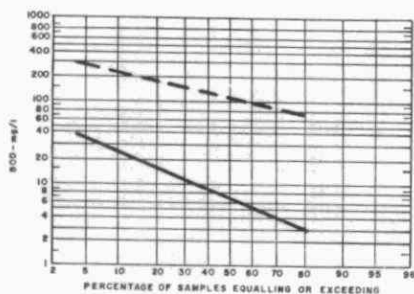
CHELMSFORD WPCP

PROCESS DATA FLOWS

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT		
	million gallons	mil. gal	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P	mg/l P		
JAN	10.5	.34	.40	230	14	94	23	238	8	97	24	10.9	1.9
FEB	10.1	.36	.39	125	16	87	11	239	11	95	23	9.6	1.9
MAR	16.8	.54	.80	260	10	96	42	333	14	96	54	14.0	3.6
APR	20.5	.68	.90	65	11	83	11	134	20	85	23	4.3	1.7
MAY	20.9	.64	.71	78	4	95	16	142	9	94	28	5.8	2.0
JUNE	18.5	.62	.69	180	6	97	32	205	6	97	37	8.5	3.3
JULY	17.8	.57	.73	130	3	98	22	290	3	99	51	8.4	2.3
AUG	13.2	.43	.75	193	3	98	25	201	4	98	26	10.0	3.7
SEPT	18.9	.63	1.14	108	3	97	20	343	7	98	64	6.8	2.5
OCT	22.2	.72	.98	63	6	90	13	389	7	98	84	5.1	0.9
NOV	21.9	.73	.84	110	2	98	23	533	7	99	115	6.4	0.8
DEC	17.8	.58	.88	75	5	93	12	462	8	98	81	6.2	1.8
TOTAL	209.1	-	-	-	-	-	257	-	-	-	579	-	-
AVG.		.57	MAXIMUM	130	7	95	21	287	10	97	48	7.6	2.1
No. of Samples	-	-	1.14	25	25	-	-	123	225	-	-	22	22

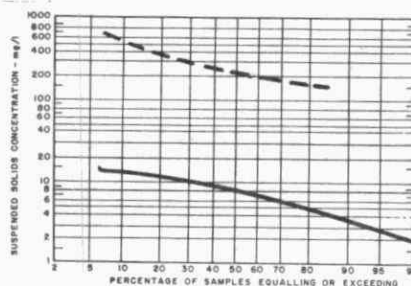


BOD₅

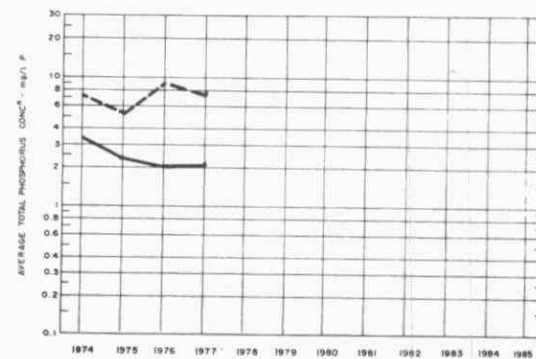
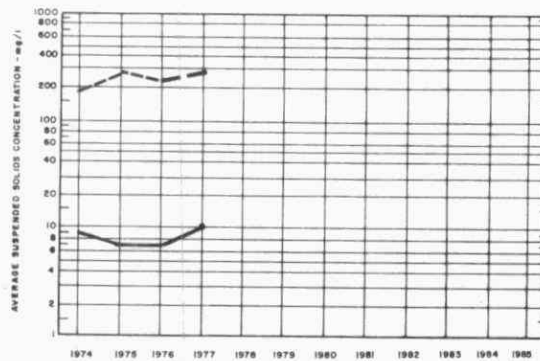
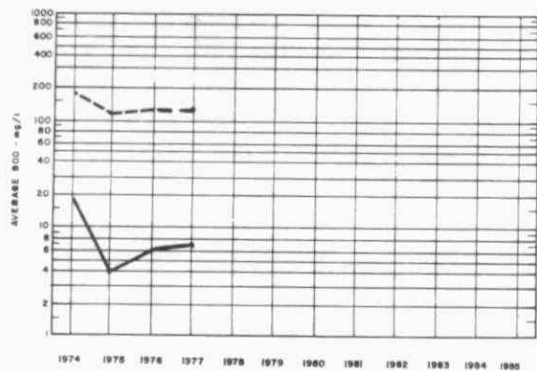
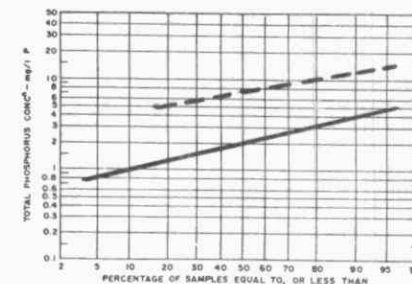


PLANT INFLUENT ———
PRIMARY EFFLUENT
PLANT EFFLUENT ———

Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG DOSAGE mg/L	MLSS CONC mg/L	F/M day ⁻¹	AIR USED 1000 ft ³ 10 ³ BOD	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	26			4100	.11	1.1	150	7000	77		10000	69	
FEB	27			3100	.08	2.0	196	6000	77				
MAR	37			3600	.22	3.2	154	7000	69				
APR	26			7700	.03	2.2	128	13000	42				
MAY	24	118	2.4	6200	.05	1.7	96	12000	46	80.0			
JUNE	13	504	2.7	6000	.10	0.8	94	8000	51	93.2	18000	49	19
JULY	26	404	3.3	5300	.08	1.1	75	9000	48	62.3	18000	48	251
AUG	25	408	3.1	6000	.08	1.0	64	11000	47	153.8	21000		824
SEPT	34	360	1.9	6100	.06	1.2	119	17000	43	82.4	17000	52	456
OCT	33	181	1.3	6400	.04	2.0	34	16000	40	85.8	15000	48	450
NOV	29			8900	.05	1.0	58	19000	43				
DEC	23			12000	.02	2.0	139	19000	42				
TOTAL	323	1975	-	-	-	-	1307	-	-	557.5	-	-	2000
AVG.	1.5 <small>1.5 ft³/mi gal</small>	396	2.2	6300	.08	1.6	109	7400	52		18000	53	

DESIGN DATA

PROJECT: Town of Latchford WPCP

PROJECT NO: 2-0140-68

TREATMENT: Extended Aeration

DESIGN FLOW: .075 MIGD

GRIT CHANNELS

Two

COMMINUTOR

AERATION TANK

Volume: 73,000 IG

Retention: 23.4 hr

BLOWERS

Three, each 125 cfm @ 5½ psi

CLARIFIER

Size: One

Volume: 15,700 IG

Retention: 5.0 hr

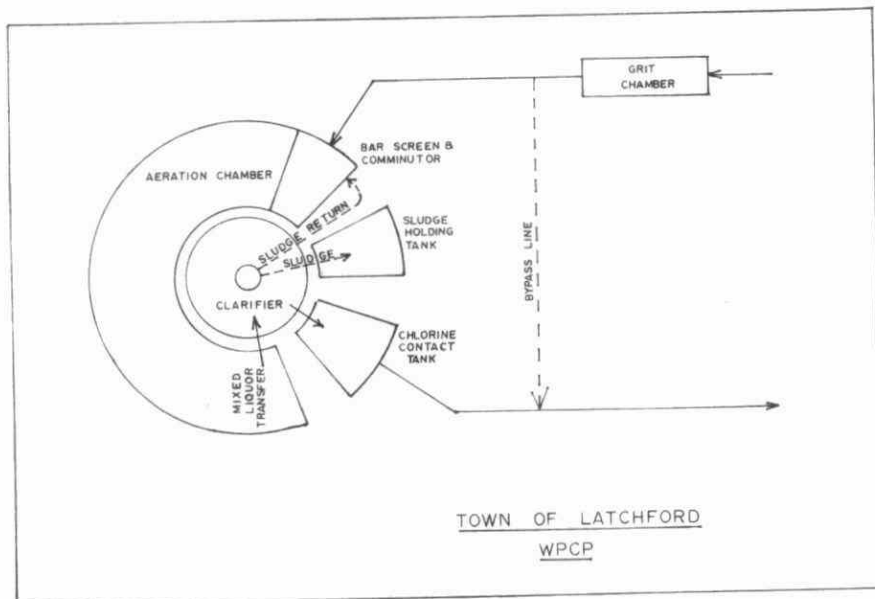
SLUDGE HOLDING TANK

Volume: 2440 IG

CHLORINE CONTACT CHAMBER

Volume: 1585 IG

Retention: 30 min



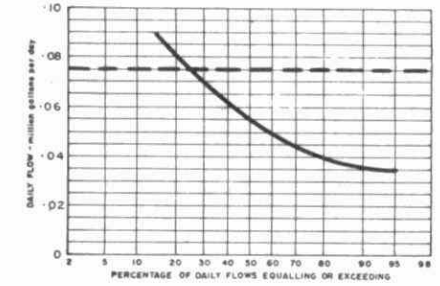
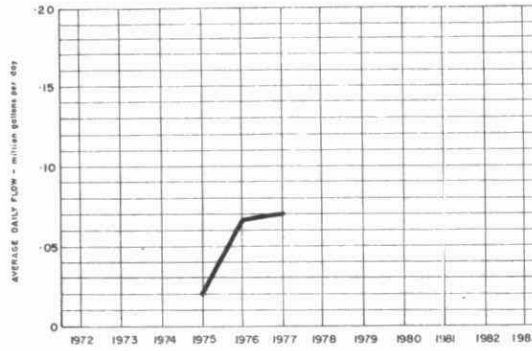
PLANT PERFORMANCE

SEWAGE

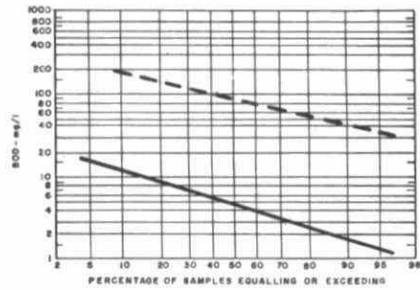
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	2.12	.068	.083	93	6	94	1.8	112	32	71	1.7	5.6	2.0
FEB	2.56	.092	.103	98	13	87	2.2	139	31	78	2.8	4.5	1.8
MAR	2.84	.091	.133	80	6	93	2.1	155	41	74	3.2	3.8	0.9
APR	2.35	.078	.108	50	5	90	1.1	96	18	81	1.8	2.7	0.8
MAY	1.97	.064	.087	135	10	93	2.5	107	24	78	1.6	5.0	1.2
JUNE	1.31	.044	.058	69	4	94	0.8	216	28	87	.24	4.5	1.5
JULY	1.34	.043	.054	135	8	94	1.7	125	15	88	1.4	5.0	1.3
AUG	1.16	.038	.045	140	5	96	1.6	144	16	89	1.5	5.8	2.0
SEPT	1.16	.039	.049	100	2	98	1.2	175	12	93	2.0	5.9	2.0
OCT	1.32	.042	.075	100	2	98	1.3	133	13	90	1.6	6.3	1.8
NOV	1.39	.046	.059	83	4	95	1.1	147	20	86	1.8	4.6	1.5
DEC	2.24	.072	.103	95	11	88	1.8	95	47	51	1.0	3.8	1.8
TOTAL	21.76	-	-	-	-	-	19.6	-	-	-	24.6	-	-
AVG.	1.81	.070	.133	96	6	94	1.6	139	26	81	2.1	4.8	1.6
No. of Samples	-	-	-	23	23	-	-	39	35	-	-	23	23

LATCHFORD WPCP

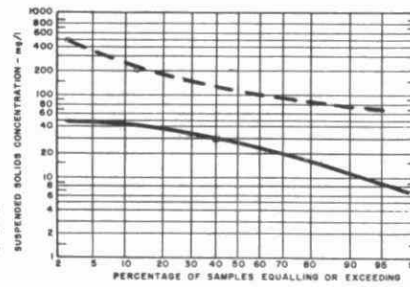
FLOWS



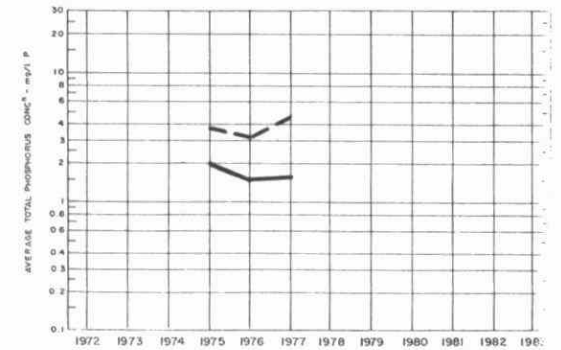
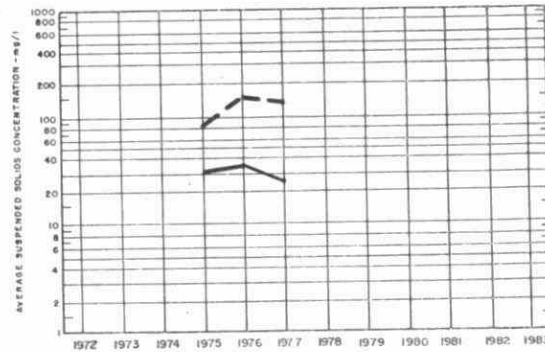
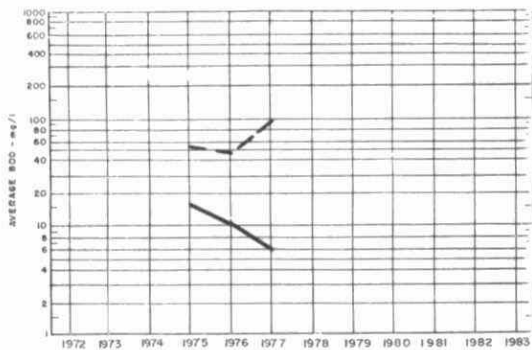
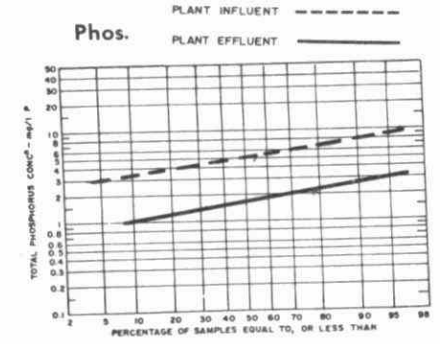
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT		CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	CL ₂ USED pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 ³ gal tons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards	
JAN	9			6200	.01	4.5		7000						
FEB	4			6800	.03	3.3		9000						
MAR	8			6600	.02	3.7	2.0	9000						
APR	7			5900	.01	6.6	2.0	9000		8			47	
MAY	11	47	2.3	6000	.02	2.7		8000						
JUNE	3	63	4.8	6200	.01	7.4	16.0	7000						
JULY	3	67	5.1	7200	.01	2.8		7000						
AUG	5	62	5.2	7700	.01	5.0		7000		10				
SEPT	1	46	3.8	7800	.01	6.7	6.0	7000			50		60	
OCT	4	43	3.3	7800	.01	6.2	6.0	7000						
NOV	38	57	4.0	7900	.01	7.1	.8	9000						
DEC	3	66	3.0	6900	.01	4.3	.8	9000						
TOTAL	96	451	-	-	-	-	33.6	-	-	18	-	-	107	
AVG	4.4 cu. ft./month per	56	3.7	6900	.01	5.0		8000						

DESIGN DATA

Project: Town of Nickel Centre
(Coniston) WPCP
Project No: 2-0008-57

Treatment	Old Plant Activated Sludge	New Plant Extended Aeration
Design Flow:	0.150 mgd	0.200 mgd

BOD - Raw Sewage 200 mg/l
Removal 93%

SS - Raw Sewage 250 mg/l
Removal 93%

PRIMARY TREATMENT

BAR SCREENS:
Two, in influent channels

AERATED GRIT TANK:
10' x 9.75' x 8.5' awd
Volume: 5,200 l. Gal. Detention: 21 min.

OLD PLANT

Primary Sedimentation

Type: Neco with helical scraper
Size: One 24' dia x 5.7' (18,400 gal) Retention: 2.94 hr.
Loading: Surface, 332 gal/ft²/day (@0.15 mgd)
Weir, 1.700 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Mechanical aeration, single-pass
Size: one 29' x 29' x 15½' (55,800 gal) Retention: 9.3 hr.

NEW PLANT

OXIDATION DITCH:
Capacity: 185,000 gal.
Detention: 22.4 hr.
Operating Depth 5 ft.

Rotor: Two, 8'2" width, each powered by
10HP motor.

CLARIFIER:
30' dia. x 8' awd
Volume: 35,000 l. Gal. Detention: 4.2 hours
Overflow Rate: 280 l. Gal/ft²/day

SLUDGE HOLDING TANK:
12.9' x 11' x 12.9' awd
Volume: 11,000 l. Gal.

CHLORINE CONTACT CHAMBER:
Four passes, each 15' x 2.5' x 7.75' awd
Volume: 7,200 l. Gal.
Detention: 30 min.

CHLORINATOR:
Type: Fisher and Porter

Aerator

Type: Ames-Crosta Size: One 6' dia.

Secondary Sedimentation

Type: Ames-Crosta Type F Size: One 28' dia x 6½'
Retention: 4 hr.
Loading: Surface, 572 gal/ft²/day (@ 0.15 mgd)
Weir, 720 gal/ft./day

SLUDGE HANDLING

Digestion System

Type: Two-stage

Primary --
One concrete fixed roof octagonal tank with 12"
Ames-Crosta screw pump

Size: 19' 3" x 14' awd (4640 ft³ or 29,000 gal)

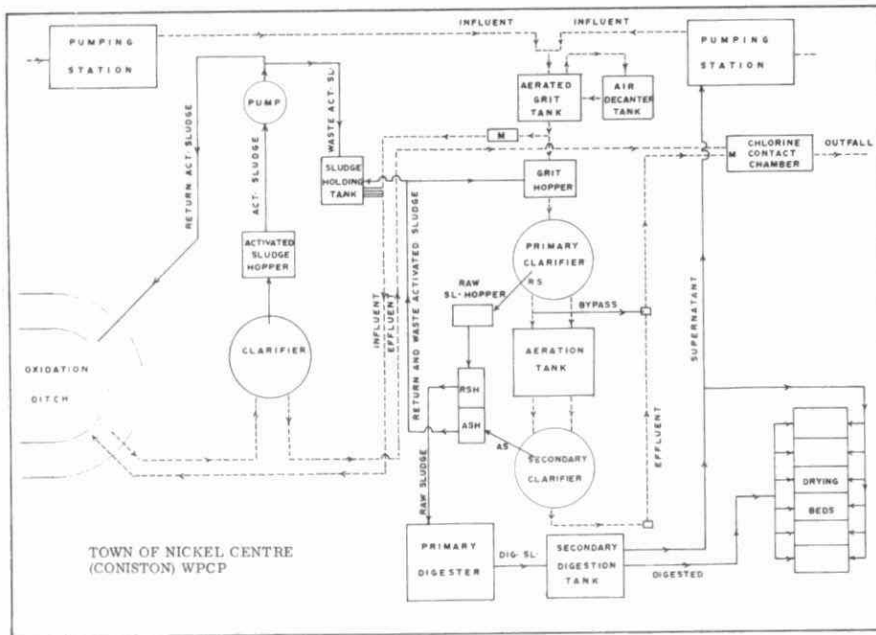
Secondary --
One concrete tank with plank roof
Size: 10' x 10' x 8' awd (920 ft³ or 5,700 gal)

Drying Beds

Six beds 20' x 30'

OUTFALL

- 10" Transite to creek

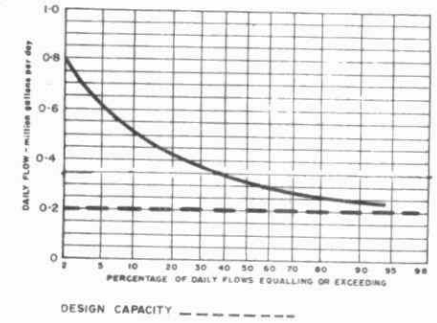
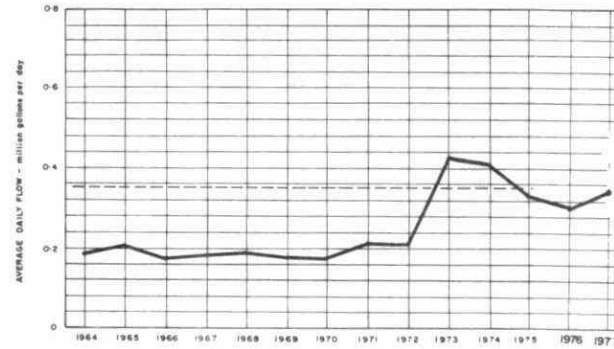


PLANT PERFORMANCE
SEWAGE

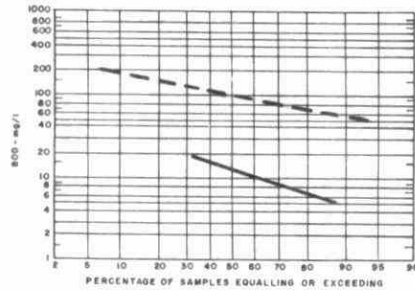
NICKEL CENTRE (CONISTON) WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	7.67	.25	.28	200	10	95	14.6	131	9	93	9.4	7.6	2.4
FEB	6.67	.24	.32	150	10	93	9.3	126	11	91	7.6	8.2	3.2
MAR	17.67	.57	1.16	90	9	90	14.3	84	14	83	12.4	5.1	1.8
APR	13.07	.44	.68	80	11	86	9.0	73	14	81	7.7	4.2	1.4
MAY	9.65	.31	.44					88	16	82	6.9		
JUNE	8.02	.27	.31					118	14	88	8.3		
JULY	8.93	.29	.55					98	11	89	7.8		
AUG	10.46	.34	.60	93	23	75	7.3	100	21	79	8.2	5.6	2.2
SEPT	12.18	.41	.67	150	22	85	15.6	72	16	78	6.8	4.7	2.1
OCT	12.58	.41	.59	66	18	73	6.0	86	11	87	9.4	3.9	1.7
NOV	12.45	.42	.69	78	13	83	8.1	72	15	79	7.1	4.8	1.5
DEC	8.59	.28	.58	110	6	95	8.9	81	9	89	6.2	4.5	1.9
TOTAL	127.94	-	-	-	-	-	-	-	-	-	-	-	-
AVG	10.66	.35	1.16	107	14	87	9.9	94	13	86	8.6	5.4	2.0
No. of Samples	-	-	-	14	14	-	-	218	211	-	-	14	14

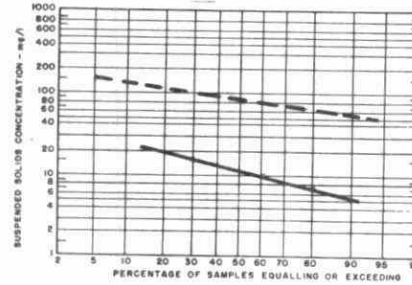
FLOWS



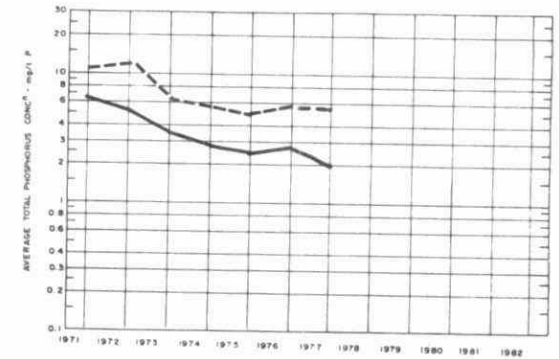
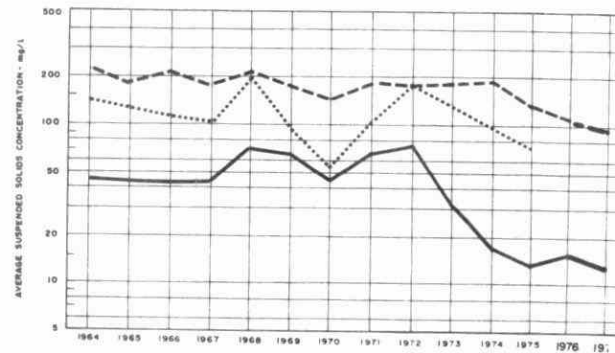
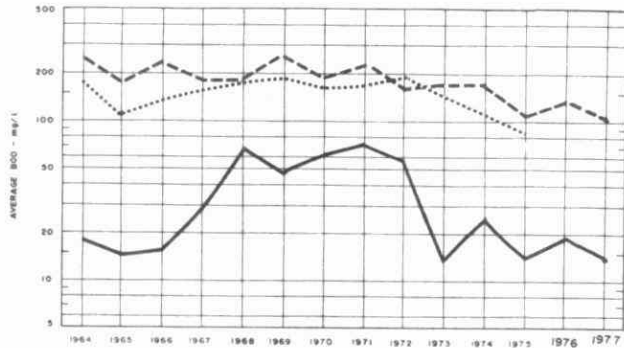
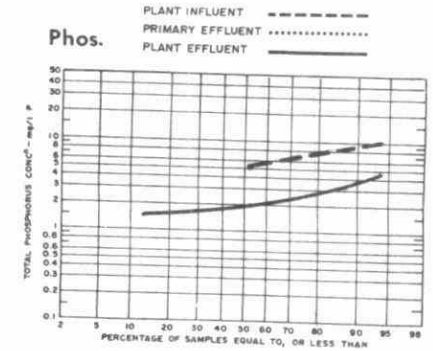
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb 800	QUANTITY 3 10 gal/lens	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gal/lens	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	120			4000	.06		1546	8000		20.2	18000		120
FEB	72			4300	.04		2100	7000		9.4	26000		56
MAR	36	315	1.8	3400	.05			8000					
APR	14	260	3.0	3300	.05		420	9000					
MAY	36	350	3.6	3400			430	6000		25.1			149
JUNE	10	360	4.5	1700				12000		18.8	31000		112
JULY	8	372	4.2	1700				10000		9.4			56
AUG	8	372	3.5	1900	.08			10000		9.4			56
SEPT		360	3.0	2100	.15			7000					
OCT	24			3800	.04			8000		6.3			37
NOV	6			4300	.04		360	7000		9.4			56
DEC	30			4500	.03		533	9000		9.4	29000		56
TOTAL	364	2389	-	-	-	-	5389	-	-	117.4	-	-	698
AVG.	2.8 cu. ft./mi ³ gal	341	3.7	3200	.06			8000			26000		

DESIGN DATA

PROJECT: Rayside - Balfour
Azilda WPCP

PROJECT NO. 5-0046-67

TREATMENT: Extended Aeration

DESIGN FLOW: 0.625 mgd

BRABANT CREEK P.S.
Type: Two, Crane-Deming
Size: each 1700 igpm @66' TDH

PRINCIPAL ST. P.S.
Type: Two Allis-Chalmers
Size: each 630 igpm @70' TDH

GRIT CHANNELS
Size: Three, each 34.25' x 2' x 2.9'
Volume: (total) 3720 I.G.
Retention: (total) 8.6 min

COMMUNUTOR
Type: Cord
Size: 16"

AERATION TANK
Volume: 484,600 I.G.
Retention: 18.6 hr

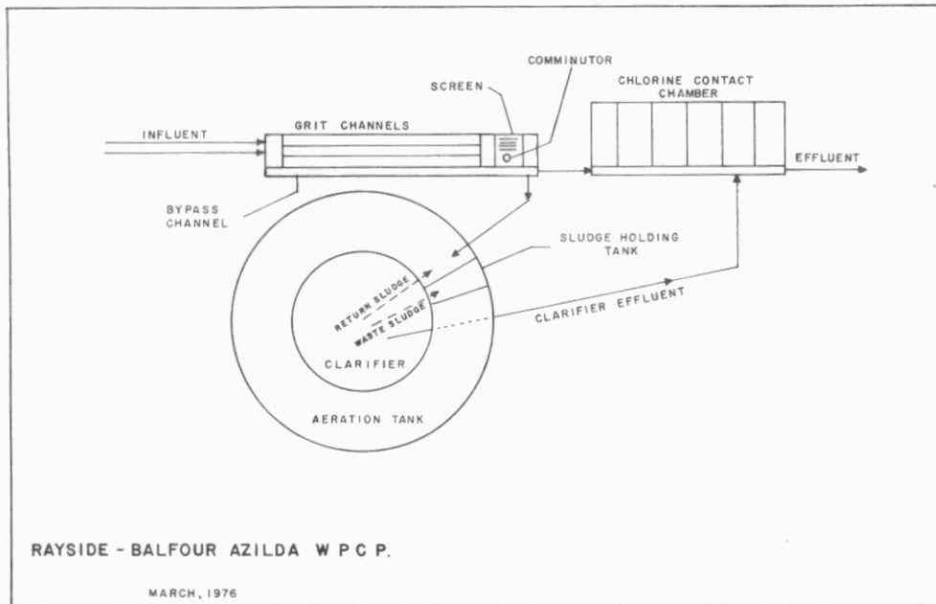
CLARIFIER
Size: 57' dia
Volume: 196,000 I.G.
Retention: 7.5 hr
Loading:
- Surface 245 I.G./ft²/day
- Weir 3492 I.G./ft/day

BLOWERS
Type: Two Hoffmann 38407
Size: each 1680 cfm

SLUDGE HOLDING TANK
Volume: 4779 I.G.

CHLORINE CONTACT TANK
Type: 5-pass
Volume (total): 16,980 I.G.
Retention: 39 min.

SLUDGE PUMP
Type: Flygt
Size: 4-inch

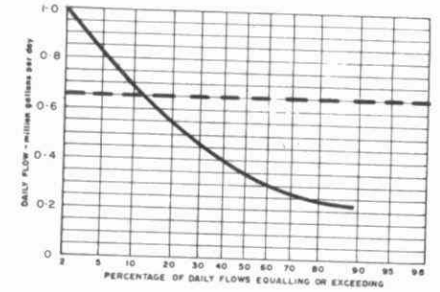
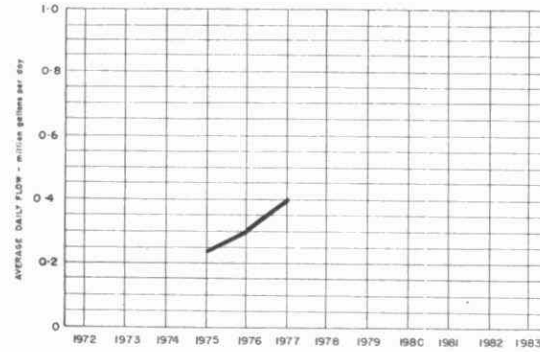


PLANT PERFORMANCE SEWAGE

RAYSIDE - BALFOUR (AZILDA) WPCP

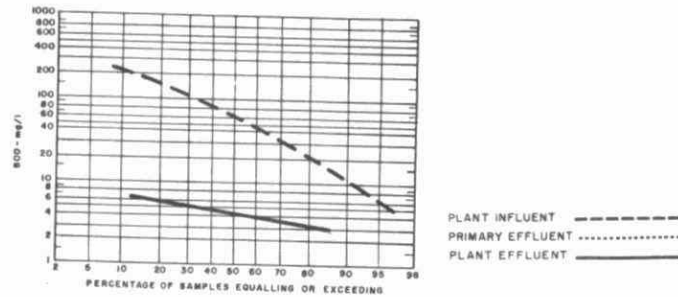
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT	REDUCTION	INFLUENT	EFFLUENT		
	million gallons	mil. gal	mgd	mg/l	mg/l	% 10 ³ pounds	mg/l	mg/l	% 10 ³ pounds	mg/l P	mg/l P		
JAN	6.8	.22	.27	200	6	97	13	231	9	96	15	9.2	5.4
FEB	6.2	.22	.26	120	6	95	7	199	11	94	12	9.1	6.5
MAR	15.8	.51	1.00	104	5	95	16	220	10	95	33	5.2	3.8
APR	21.5	.72	1.14	5	6	0	0	64	6	91	12	1.9	1.3
MAY	11.6	.38	.52	55	3	95	6	87	8	91	9	3.6	3.2
JUNE	7.4	.25	.28	145	4	97	10	146	6	96	10	6.6	4.5
JULY	7.3	.24	.28	125	3	98	9	104	4	96	7	7.0	5.4
AUG	8.1	.26	.32	140	2	99	11	159	4	97	13	7.6	4.6
SEPT	13.0	.44	.81	66	4	94	8	138	11	92	16	4.1	3.5
OCT	17.4	.56	.71	26	3	88	4	61	6	90	10	3.2	1.9
NOV	18.0	.60	.80	27	3	89	4	55	4	93	9	2.2	2.3
DEC	12.5	.40	.59	33	2	94	4	39	5	87	4	2.4	2.7
TOTAL	145.6	-	-	-	-	-	120	-	-	-	170	-	-
AVG.		.40	MAXIMUM 1.14	87	4	95	10	124	7	94	14	5.1	3.8
No. of Samples	-	-	-	24	24	-	-	77	77	-	-	24	24

PROCESS DATA FLOWS

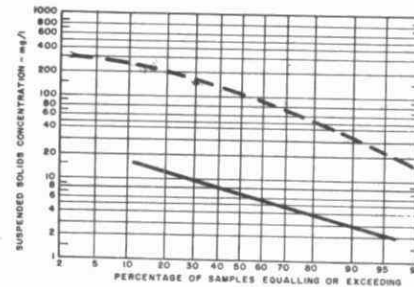


DESIGN CAPACITY -----

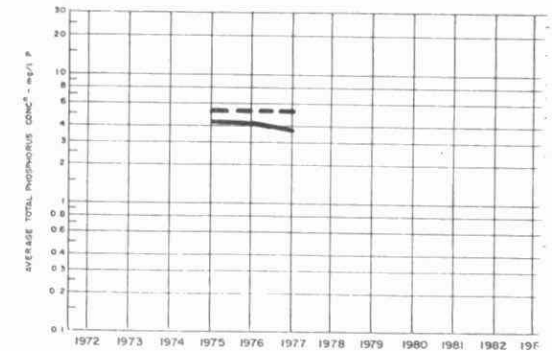
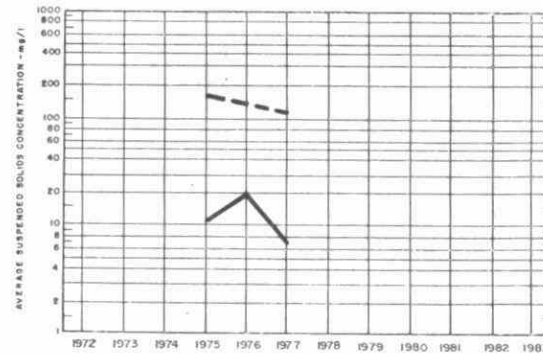
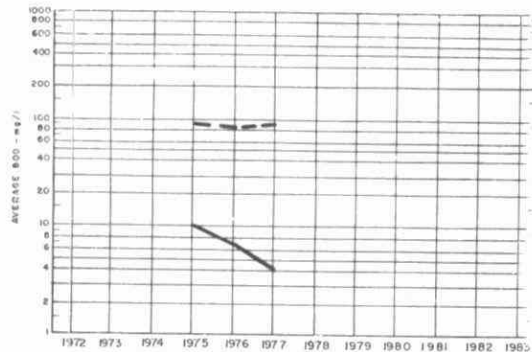
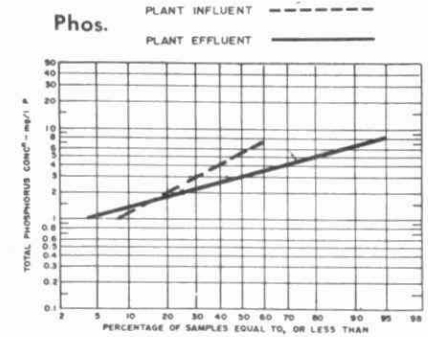
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	CL ₂ USED	AVG. DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ BOD	10 ³ gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN	28			5700	.02	4.3	27	8000	60				
FEB	10			6400	.01	7.0	46	9000	56	67	26000		395
MAR	78			5900	.02	3.6	43	12000	48	35	24000		205
APR	104			1800	.004			5000	46				
MAY	70	100	3.3	3600	.01	9.1		7000	60				
JUNE	22	341	4.6	6000	.01	5.1	63	1000	46	53	30000		
JULY	22	347	4.7	4700	.01	7.4	28	8000	47	39	34000		
AUG	12	372	4.6	5600	.01	5.0	52	9000	43	29	47000		
SEPT	56	372	2.8	4100	.02	6.7	26	9000	37	31	50000		
OCT	98	162	2.2	3000	.01	14.0		6000	39				
NOV	68			4100	.01	12.5	9	10000	40	9	20000		
DEC	62			4600	.01	14.4	12	10000					
TOTAL	630	1694	-	-	-	-	306	-	-	263	-	-	600
AVG.	4.3 cu. ft/mil gal	339	3.7	4600	.01	7.4		9000	47		33000		

DESIGN DATA

PROJECT Town of Smooth Rock Falls

PROJECT NO. 1-0097-67
 TREATMENT Extended Aeration
 DESIGN FLOW 0.36 mgd
 DESIGN POPULATION 3000

BOD - Raw Sewage 150 mg/l
 - Removal 90%

SS - Raw Sewage 150 mg/l
 - Removal 90%

SECONDARY TREATMENT

Aeration Tank

Volume: 41,700 ft.³
 Detention: 17.25 hr.

Secondary Sedimentation

Size: 43' dia. 10 SWD 12' CWD
 Loading: Weir, 2660 gal./ft./day
 Detention: 48 min.

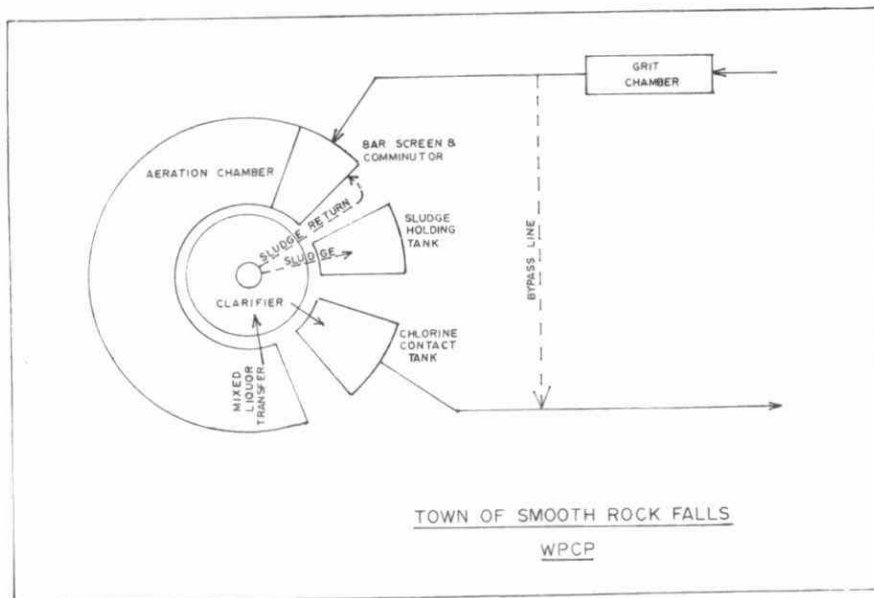
SLUDGE HANDLING

Holding Tank Volume: 1500 ft.³

CHLORINATION

Chlorine Contact Chamber

Size: 1200 ft.³



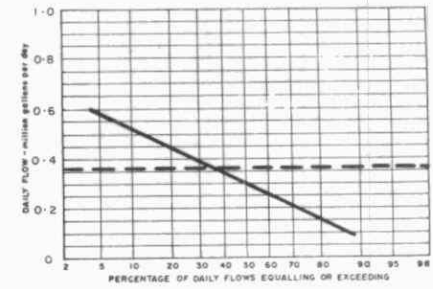
PLANT PERFORMANCE

SEWAGE

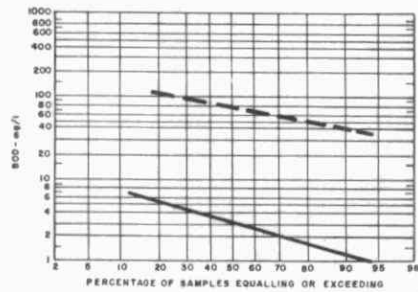
SMOOTH ROCK FALLS WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	N/A			90	3	97		106	5	95		5.2	3.5
FEB	N/A			85	5	94		76	5	93		5.8	3.1
MAR	N/A			45	4	91		95	5	95		4.1	2.4
APR	N/A			70	8	89		88	5	94		2.2	0.8
MAY	N/A			140	4	97		96	7	93		6.2	2.0
JUNE	N/A			44	4	91		52	5	90		2.4	
JULY	N/A			69	2	97		39	5	87		3.8	3.2
AUG	N/A			65	2	97		48	5	90		3.3	2.5
SEPT	N/A			95	2	98		62	6	90		5.0	1.4
OCT	N/A			125	5	96		66	7	89		6.9	3.6
NOV	N/A							65	5	92			
DEC	N/A			70	3	96		61	7	89		4.4	3.9
TOTAL	Est. 91,250	-	-	-	-	-	-	-	-	-	-	-	-
AVG.		+2.50	MAXIMUM	75	4	95	5.4	71	6	92	4.9	4.6	2.9
No. of Samples	-	-	-	16	16	-	-	66	70	-	-	15	15

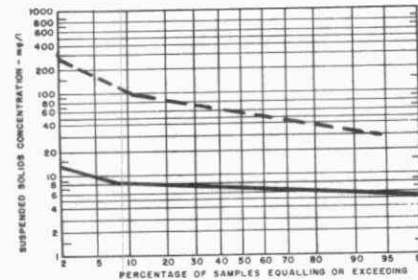
FLOWS



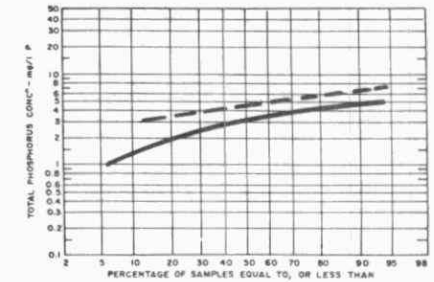
B O D



SUS SOL



PHOS



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			HOLDING TANK			
	QUANTITY REMOVED	Cl ₂ USED	AVG DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED SOLIDS	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED	
	cubic feet	pounds	mg/L	mg/L	day ⁻¹	1000 ft ³ lb 800	10 ³ gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN	39			3200			3.9						
FEB	36			2700									
MAR	40			2300									
APR	39			2100									
MAY	40	210		2500					13.5				80
JUNE	48	268		2400			0.2		13.5				80
JULY	38	253		2400	.02		6.0						
AUG	41	257		2700	.02				18.0				107
SEPT	46	285		2600	.03			4000		9000			
OCT	39	145		2800	.09			5000					
NOV	38			3000			6.0	7000					
DEC	27			4000	.03		5.0	7000					
TOTAL	471	1418	-	-	-	-	21.1	-	-	45.0	-	-	267
AVG.	3.9 cu ft/mi gal	236	3.5	2700	.04		1.8	6000		9000			

REGION 6
Northwestern

DESIGN DATA
 PROJECT TOWN OF GERALDTON
 PROJECT NO. 1-0041-66
 TREATMENT Extended aeration
 DESIGN FLOW 0.4 MGD

PRETREATMENT

Grit Removal

Type: Grit channels
 Size: Twin 25' X 2' x 0.72' deep

SECONDARY TREATMENT

Aeration Tank

Volume: 11,346 gal.
 Loading: 918 lb. BOD/day

Clarifier

Surface Area: 1320 ft.²
 Overflow Rate: 300 gal./ft.²/day

SLUDGE HANDLING

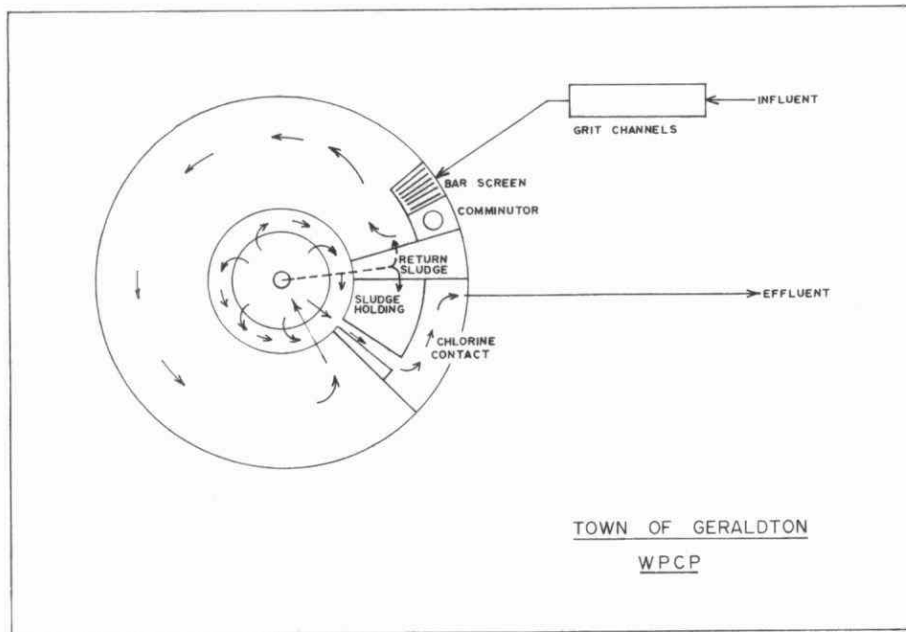
Holding Tank

Volume: 2000 ft.³

CHLORINATION

Chlorination Contact Chamber

Volume: 1110 ft.³
 Retention: 30 min.

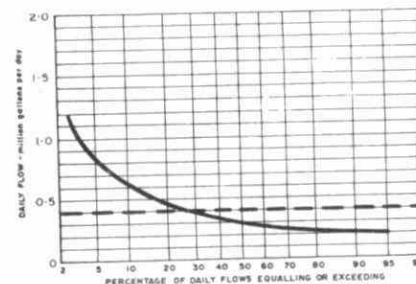


PLANT PERFORMANCE
SEWAGE

GERALDTON WPCP

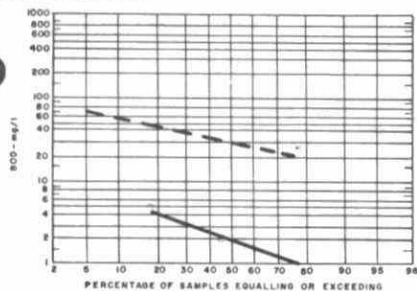
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	7.24	.23	.27	47	5	89	2.4	73	23	68	2.8	4.6	3.6
FEB	6.41	.23	.26	75	2	97	4.7	78	8	90	4.5	5.7	3.6
MAR	13.51	.44	.90	103	36	65	9.1	135	308	0	0	5.4	6.4
APR	29.86	.99	2.80	21	8	62	3.9	250	45	82	61.2	2.0	1.4
MAY	10.65	.34	.46	35	4	89	3.3	75	12	84	6.7	4.5	1.6
JUNE	16.15	.54	1.84	60	1	98	9.5	200	5	97	3.1	7.1	3.1
JULY	12.80	.41	1.09	46	3	93	5.5	80	15	81	8.3	7.2	1.8
AUG	11.88	.38	1.22	40	2	95	4.5	115	7	93	12.8	3.0	2.0
SEPT	16.00	.53	.92	47	3	93	7.0	92	35	61	9.1	2.9	1.5
OCT	13.86	.44	1.07	48	3	93	6.2	65	40	38	3.4	4.0	1.3
NOV	11.46	.38	.70	41	3	92	4.3	71	35	50	4.1	3.7	1.8
DEC	8.60	.27	.46	48	2	95	3.9	65	25	61	3.4	3.2	1.6
TOTAL	158.42	-	-	-	-	-	72.8	-	-	-	80.8	-	-
AVG.		.43	MAXIMUM 2.80	52	6	88	6.1	100	49	51	6.7	4.3	2.5
No. of Samples	-	-	-	20	21	-	-	20	21	-	-	20	21

FLOWS



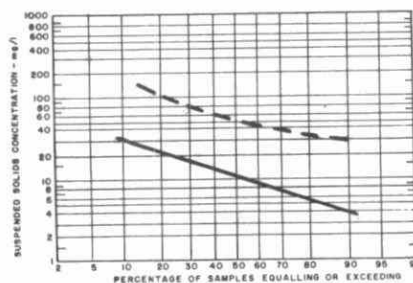
DESIGN CAPACITY -----

BIOCHEMICAL
OXYGEN
DEMAND

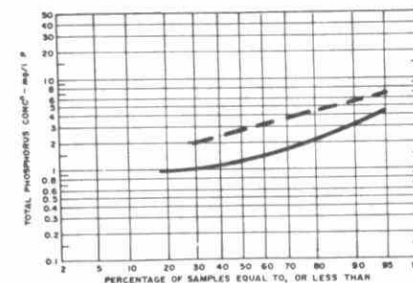


PLANT INFLUENT -----
PLANT EFFLUENT -----

SUSPENDED
SOLIDS



PHOSPHORUS



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	CL ₂ USED	AVG DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft lb BOD	10 gallons	mg/l	%	10 gallons	mg/l	%	cubic yards
JAN				15600	.02								
FEB				13900	.03								
MAR	29	40	1.3	10100	.10								
APR	117	284	1.0	10800	.04								
MAY	6	310	2.9	4700	.06								
JUNE	255	312	1.9	10000	.07								
JULY	62	305	2.4	17000	.02								
AUG	129	180	1.5	9500	.03								
SEPT	78	390	2.4	2100	.27								
OCT	8	412	3.0										
NOV	17	394	3.4	19500	.02								
DEC	5	353	4.1	19300	.01								
TOTAL	706	2980	-	-	-	-							
AVG.	4.5 cu. ft/mi gal	298	1.9	12000	.06								

DESIGN DATA

Project: Ignace Twp. WPCP

Project No: 1-0060-67
Design Flow: 0.21 MGD
Contact Stabilization
0.14 MGD
Extended Aeration
Design Population: 2500
BOD: Raw Sewage - 285 lb/day

PRETREATMENT

PUMPING STATION:

Pumps: Two, Type: FLYGT CP3151
Size: 670 USGPM at 59' TDH

Bar Screen at pumping station inlet

GRIT CHANNELS:

Two, 25' x 2' x 2' swd
Volume: (each) 624 I. Gal.
Detention: (each) 4.2 min.

BIOLOGICAL TREATMENT (Extended Aeration)

MIXING ZONE:

Volume: 26,000 I. Gal. Detention: 3.0 hours

AERATION ZONE:

Volume: 113,000 I. Gal.

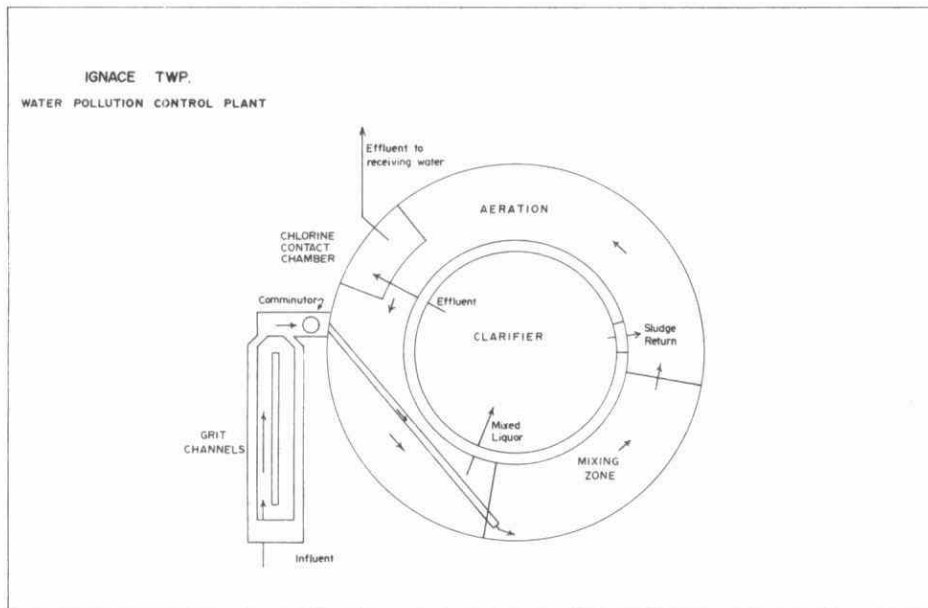
Blowers, Two, Type: Roots Connersville RA188
Size: 590 cfm

SETTLING ZONE:

23'2" dia. x 12.6' awd
Volume: 37,000 I. Gal. Detention: 4.2 hours
Overflow Rate: 500 I. Gal./ft²/day

CHLORINE CONTACT ZONE:

Volume: 4300 I. Gal. Detention: 29 min.

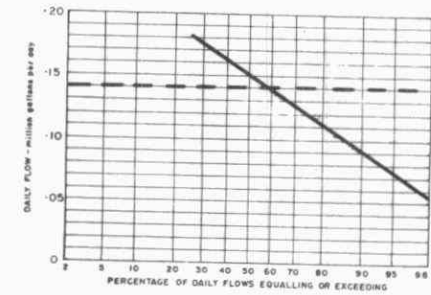
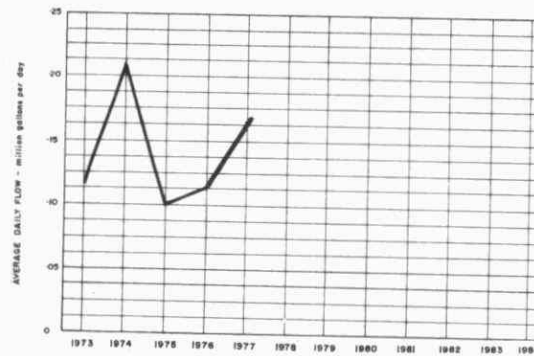


PLANT PERFORMANCE SEWAGE

IGNACE TWP. WPCP

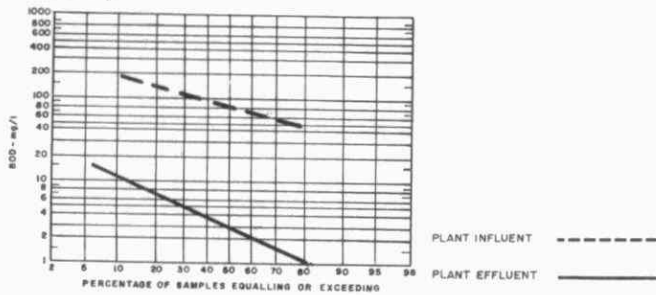
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	3.82	.123	.166	225	7	96	8.3	265	12	95	9.6	10.0	3.7
FEB	4.03	.143	.171	150	15	90	5.4	130	8	93	4.9	6.2	3.7
MAR	4.11	.133	.309										
APR	3.73	.124	.450										
MAY	4.36	.140	.192										
JUNE	4.17	.138	.231										
JULY	4.92	.158	.238										
AUG	4.90	.158	.255	190	6	96	9.0	95	22	76	3.6	9.6	7.2
SEPT	6.83	.227	.609	110	9	92	6.9	110	12	89	6.7	8.5	5.0
OCT	5.44	.181	.303	87	3	96	4.6	97	15	84	4.5	7.4	6.0
NOV	6.28	.209	.325										
DEC	6.99	.225	.440	28	2	92	1.8	30	7	76	1.6	3.6	4.5
TOTAL	59.58	-	-	-	-	-	78.0	-	-	-	73.2	-	-
AVG		.163	.609	137	6	95	6.5	136	13	90	6.1	8.1	4.9
No. of Samples	-	-	-	8	15	-	-	8	16	-	-	8	16

PROCESS DATA FLOWS

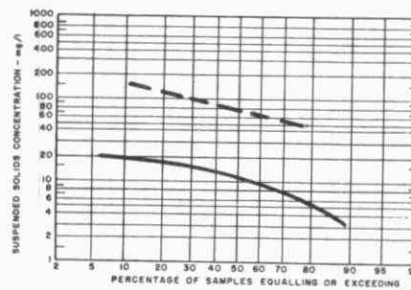


DESIGN CAPACITY 025 MGD

BOD₅

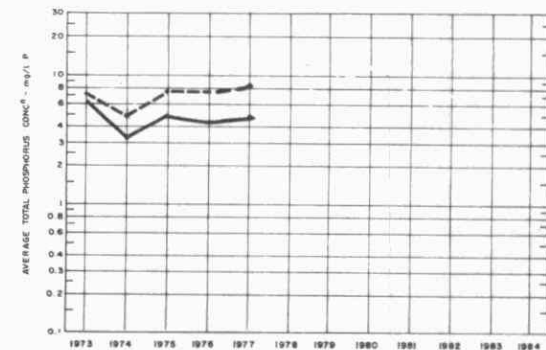
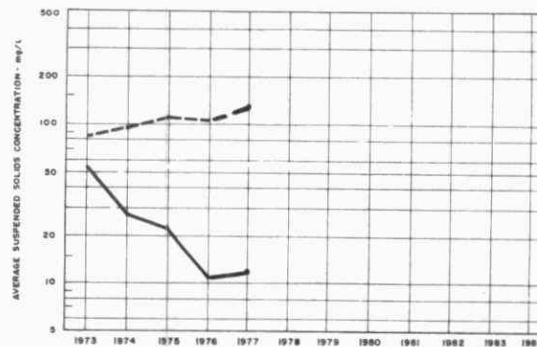
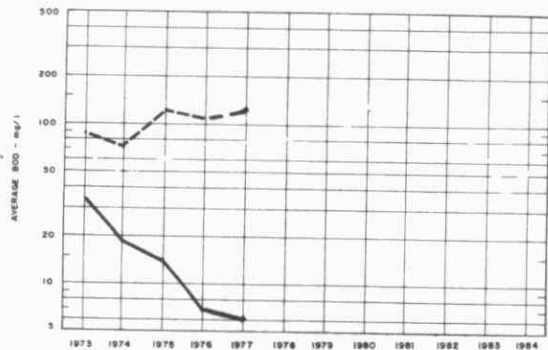
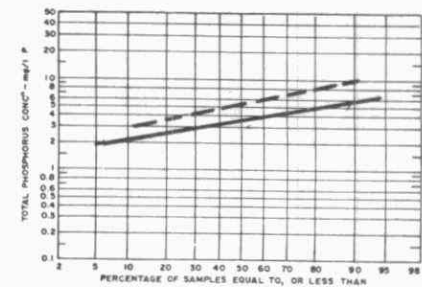


Susp. Solids



PLANT INFLUENT - - - - -
PLANT EFFLUENT —————

Phos.



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		AERATION - No. 1			AERATION - No. 2			AEROBIC DIGESTER			
		Cl ₂ USED DOSEAGE pounds	AVG DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft lb 800	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft lb 800	QUANTITY REMOVED 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN		232	6.1	800	.150		4700	.03					
FEB		222	5.5	2400	.040		4600	.02					
MAR		193	4.7										
APR		396	10.6										
MAY		310	7.1										
JUNE		318	7.6										
JULY		360	7.3										
AUG		439	9.0	4400	.030		5800	.02					
SEPT		384	5.6	5100	.020		6000	.02					
OCT		322	5.9	5100	.010		5800	.01					
NOV		412	6.6										
DEC		24	.3	4400	.006		2400	.01					
TOTAL		3612	-	-	-	-	-	-	-	-	-	-	-
AVG.	ex. 11/2mil gal		6.7	3000	.043		4900	.02					

DESIGN DATA

PROJECT: Pickle Lake

PROJECT NO: 2-1017-77-00

TREATMENT: Extended Aeration

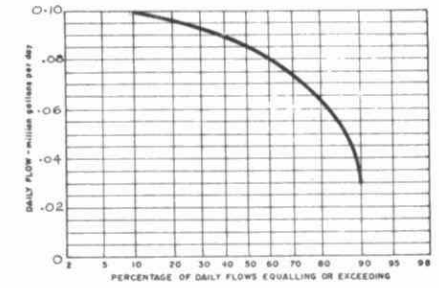
DESIGN FLOW: 0.2 MGD

PLANT PERFORMANCE SEWAGE

PICKLE LAKE WPCP

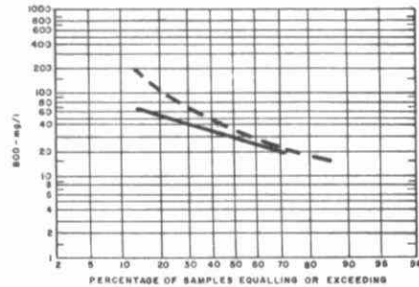
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mi. gal	mgd	mg/l	mg/l	%	pounds	mg/l	mg/l	%	pounds	mg/l P	mg/l P
JAN													
FEB													
MAR													
APR													
MAY													
JUNE	1.917	.075	.159										
JULY	2.005	.073	.138										
AUG	N/A			17	34	0	-	15	70	0	-	1.6	1.7
SEPT	N/A			26	55	0	-	30	15	0	-	2.9	4.3
OCT	N/A			42	67	0	-	45	20	0	-	4.3	4.6
NOV	N/A			60	60	0	-	70	10	0	-	3.1	3.9
DEC	N/A			430	21	95	-	25	25	0	-	2.4	3.5
TOTAL													
AVG.		.074	.159	115	47	59	1485	37	28	24	197	3.1	3.7
No. of Samples	-	-	-	5	5	-	-	5	5	-	-	6	7

FLOWS

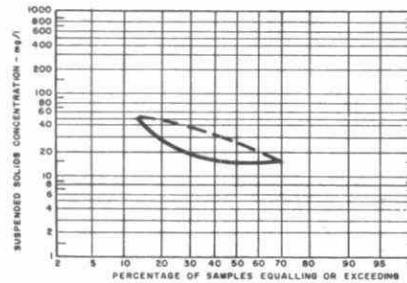


*Est. Flow 15.3 m.g. 208 days

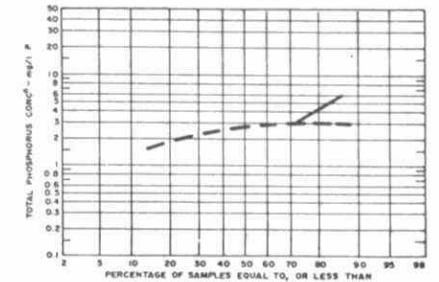
BOD



SUSPENDED SOLIDS



PHOSPHORUS



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED 10 ³ pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ BOG	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN													
FEB													
MAR													
APR													
MAY													
JUNE		179	9.3										
JULY		186	9.3										
AUG		281											
SEPT		280											
OCT		210											
NOV		102											
DEC		375											
TOTAL		1613	-	-	-	-		-	-		-	-	
AVG.	cu. ft/mil gal	230	10.5										

DESIGN DATA

PROJECT Municipality of
Schreiber

PROJECT NO. 1-0072-67
TREATMENT

BOD Raw Sewage 450 mg/l
SS Raw Sewage 240 mg/l

PRETREATMENT

Grit Channels

Twin

SECONDARY TREATMENT

Aeration Tanks

Contact Volumes: $3333 \text{ ft}^3 = 20,800 \text{ gal.}$
 Reaeration Volume: $7792 \text{ ft}^3 = 48,600 \text{ gal.}$
 Loading: $40 \text{ lb. BOD}/1000 \text{ ft}^3$
 Contact Retention: 2 hr.
 Reaeration Retention: 4.67 hr.
 Total Area: 741 ft^2

Air Supply

Total: 1000 cfm
 No. of blowers: 2
 Each blower provides 932 cfm @ 845 r.p.m.
 using a 50 hp. motor

Secondary Sedimentation

Area: 727 ft^2
 Volume: $8760 \text{ ft}^3 = 54,600 \text{ gal.}$
 Loading: surface, $344 \text{ gal./ft}^2/\text{day}$
 Retention: 5.25 hr.

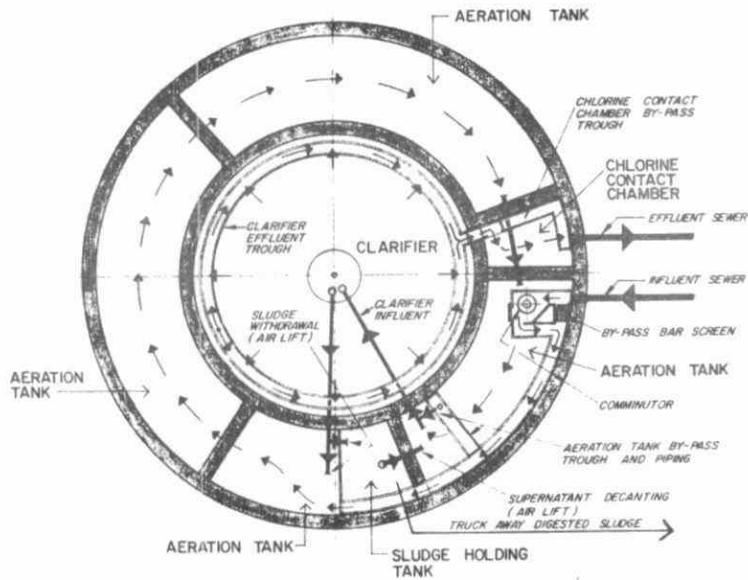
SLUDGE HANDLING

Volume, Digester #1: 5300 ft.³
 Volume, Digester #2: 2700 ft.³
 Surface area (Total): 533 ft.²
 Loading: $3.2 \text{ ft}^3/\text{capita}$
 Air Supply: 400 cfm

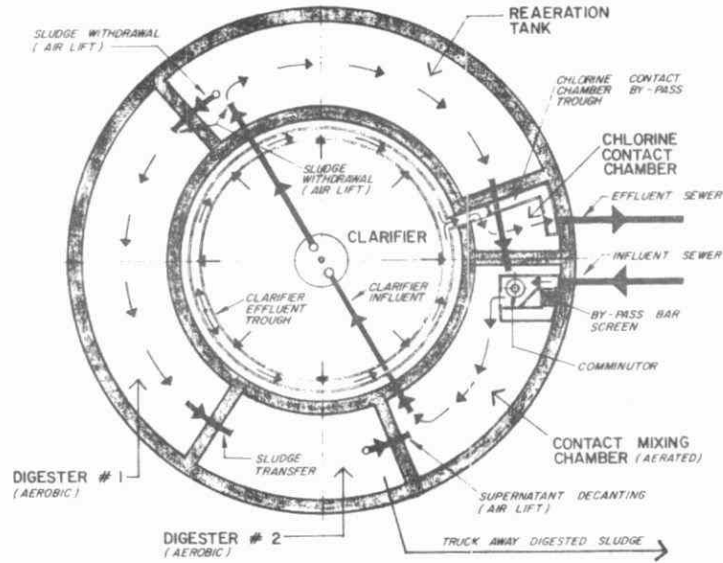
CHLORINATION

Chlorination Contact Chamber

Volume: 5200 gal.
 Detention: 30 min.



EXTENDED AERATION



CONTACT STABILIZATION (FUTURE)

SCHMATIC FLOW DIAGRAM

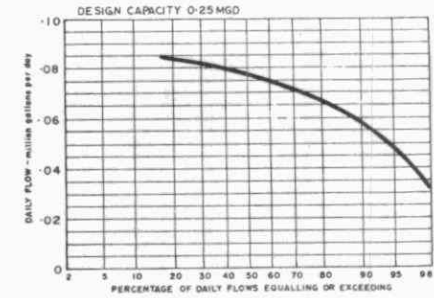
PLANT PERFORMANCE

SEWAGE

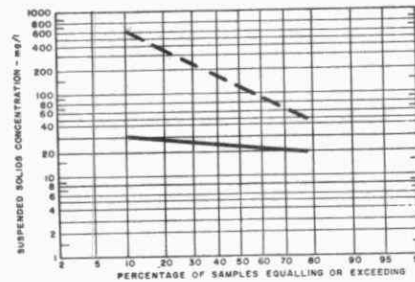
SCHREIBER WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ⁵ pounds	mg/l	mg/l	%	10 ⁵ pounds	mg/l P	mg/l P
JAN	1.91	.061	.070										
FEB	2.08	.074	.144	59	19	68	.83	90	45	50	.93	4.2	3.1
MAR	2.74	.088	.300										
APR	2.37	.078	.081	170	23	86	3.5	200	45	78	3.7	8.0	3.8
MAY	2.47	.079	.083	260	24	91	5.8	1030	35	97	24.5	18.0	6.5
JUNE	2.46	.082	.086	110	15	86	2.3	95	45	53	1.2	57.0	6.1
JULY	2.56	.082	.100										
AUG	2.57	.082	.087	260	14	94	6.3	200	14	93	4.7	12.0	6.6
SEPT	2.75	.091	.135										
OCT	2.65	.085	.163										
NOV	2.48	.082	.113	300	7	97	7.2	690	40	94	16.1	15.0	4.6
DEC	2.50	.080	.108	100	20	80	1.9	230	30	86	4.9	5.8	3.2
TOTAL	29.54	-	-	-	-	-	34.4	-	-	-	85.9	-	-
AVG		.080	.300	164	17	89	3.6	328	37	88	7.1	15.5	4.6
No. of Samples	-	-	-	8	8	-	-	8	8	-	-	8	8

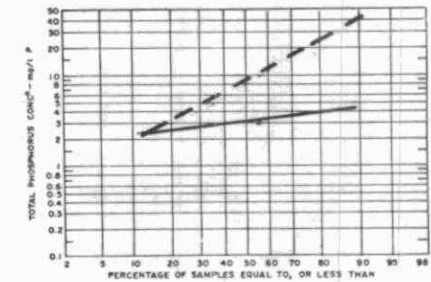
FLOWS



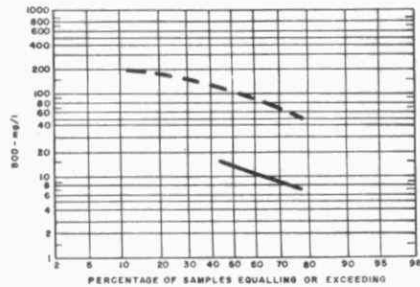
SUSPENDED SOLIDS



PHOSPHORUS



BOD



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED 10 ³ pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	QUANTITY REMOVED 10 gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	AMOUNT HAULED cubic yards
JAN													
FEB				5500	.008								
MAR													
APR				6600	.020								
MAY				8300	.025								
JUNE				6400	.014								
JULY													
AUG				4600	.046								
SEPT													
OCT													
NOV				4100	.060								
DEC				5800	.014								
TOTAL			-	-	-	-		-	-		-	-	
AVG.	cu. ft/m ³ gal			5900	.027								



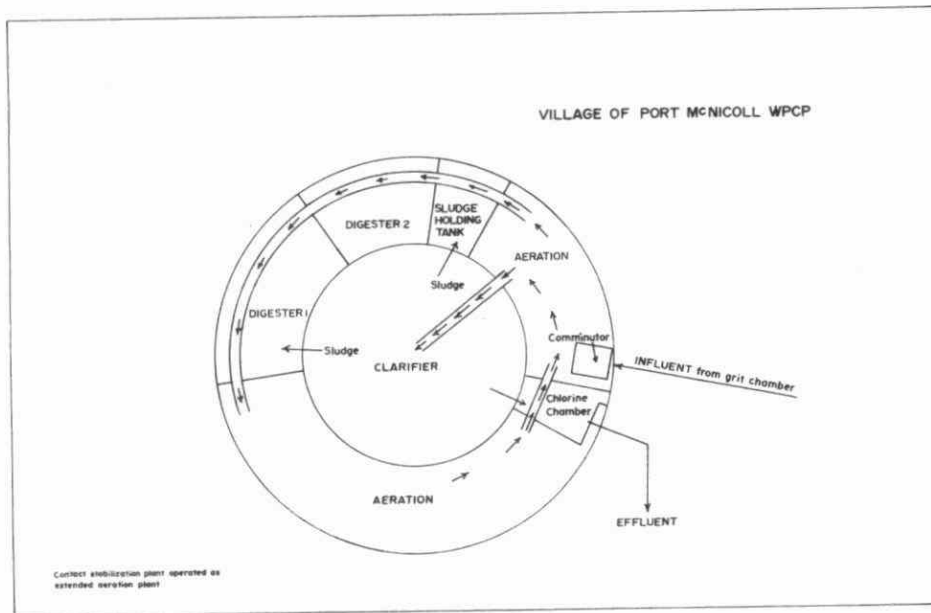
CONTACT STABILIZATION PLANTS



REGION 3
Central

DESIGN DATA

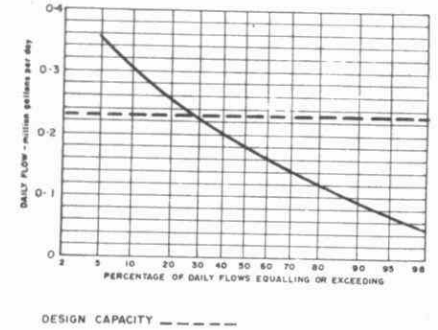
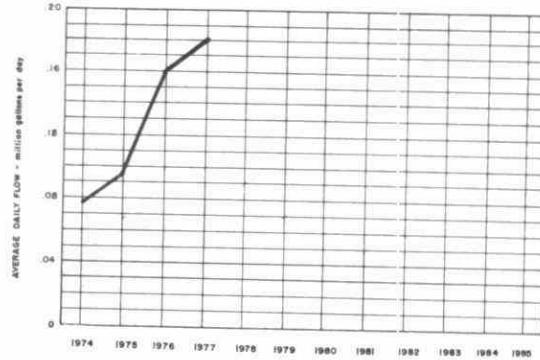
PROJECT	Village of Port McNicoll WPCP	<u>PRETREATMENT</u>
PROJECT NO.	1-0091-67	<u>RAW SEWAGE PUMPS</u>
TREATMENT	Contact Stabilization	Two, Type: PACIFIC Size: each 280 igpm
DESIGN FLOW	0.23 MGD	<u>GRIT CHANNELS</u>
		Two, each 12' x 1' x 1.25 awl Volume: (each) 94 gal. Detention: 0.6 min.
		<u>BIOLOGICAL TREATMENT</u>
		<u>CLARIFIER</u>
		29' dia. x 12.25' awl Volume: 50,500 I. Gal. Detention: 5.2 hr. Overflow Rate: 348 I. Gal./ft ² /day
		<u>AERATION TANK</u>
		Volume: 87,800 I. Gal. Detention: 9.2 hr. Blowers: Three CORD CA-59 Size: 600 cfm at 15 psi
		<u>AEROBIC DIGESTER 1</u>
		Volume: 26,000 I. Gal.
		<u>AEROBIC DIGESTER 2</u>
		Volume: 17,000 I. Gal.
		<u>CHLORINE CHAMBER</u>
		Volume: 6750 I. Gal. Detention: 42 min.
		<u>SLUDGE HOLDING TANK</u>
		Volume: 9,000 I. Gal.



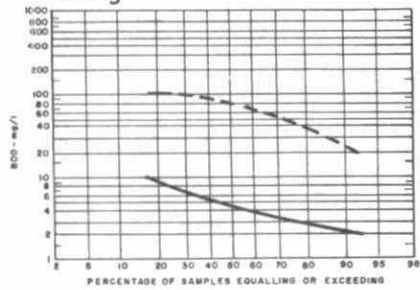
PLANT PERFORMANCE
SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mi. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION % 10 ³ pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION % 10 ³ pounds	INFLUENT mg/l P	EFFLUENT mg/l P		
JAN	3.9	.13	.14	65	5	92	2.3	73	7	90	2.6	4.3	1.1
FEB	4.0	.14	.19										
MAR	11.1	.36	.71	75	4	95	7.9	158	15	99	15.9	3.4	0.8
APR	7.3	.24	.40	30	4	87	1.9	50	15	70	2.6	2.8	0.9
MAY	2.6	.085	.16	84	6	93	2.0	129	6	95	3.2	4.5	0.9
JUNE	2.4	.078	.12	110	5	95	2.5	140	15	89	3.0	5.7	1.5
JULY	4.6	.15	.29	90	2	98	4.0	168	15	91	7.0	6.0	1.6
AUG	5.0	.16	.19	100	4	96	4.8	104	12	88	4.6	5.4	1.5
SEPT	4.8	.16	.27	90	2	98	4.3	107	5	95	5.0	5.8	1.6
OCT	9.1	.30	.38	24	10	58	1.3	39	7	82	2.9	2.5	1.3
NOV	7.4	.25	.32	58	9	84	3.6	89	15	83	5.4	3.4	0.7
DEC	7.5	.24	.30										
TOTAL	69.7	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	5.8	.19	MAXIMUM .71	71	5	93	3.8	104	12	88	5.3	4.3	1.1
No. of Samples	-	-	-	11	11	-	-	11	11	-	-	11	11

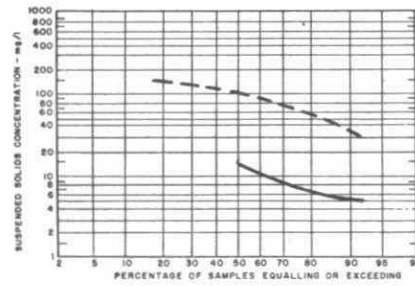
PROCESS DATA
FLOWS



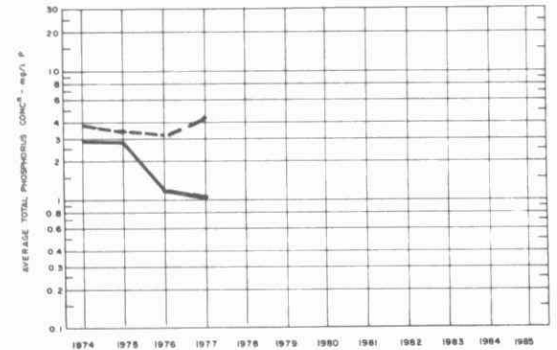
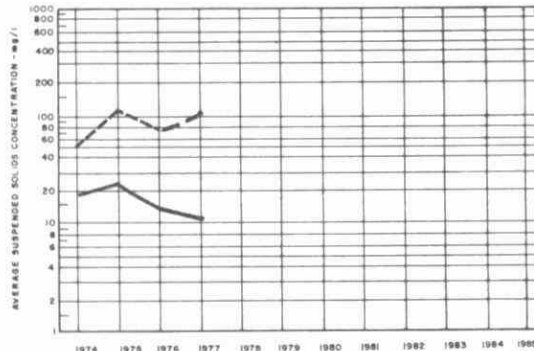
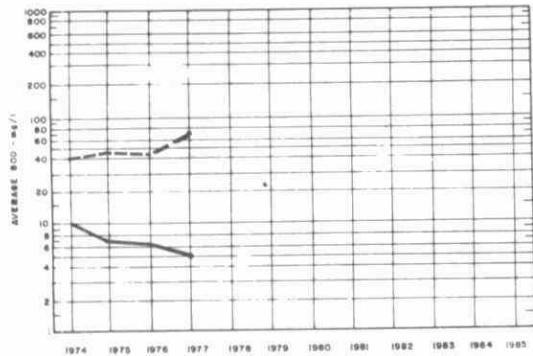
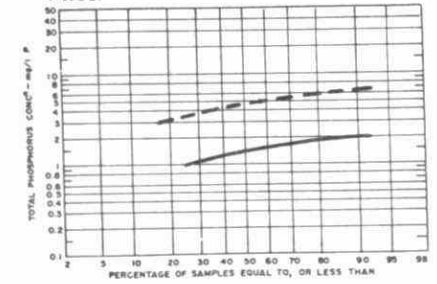
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT		CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	CL ₂ USED	AVG DOSAGE	MLSS CONC. (CONTACT)	F/M	MLSS CONC. REAERATION	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAILED
	cu. ft.	pounds	mg/l	mg/l	day ⁻¹	mg/l	1000 ft ³ lb BOG	10 gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN	8	120	3.1	3400	.02	4700					13.6	3.4	65	80
FEB	8	112	2.8								6.8			40
MAR	28	172	1.5	2600	.07	5000					20.4			120
APR	21	163	2.2	2200	.02	3900					6.8			40
MAY	13	132	5.1	2600	.03	3500					14.0			83
JUNE	9	120	5.0	3000	.03	4000					7.2			43
JULY	11	125	2.7	3500	.04	4100					14.4			86
AUG	9	124	2.4	3200	.05	4200					14.4			86
SEPT	10	125	2.6	3200	.04	4100					14.4			86
OCT	13	155	1.7	2000	.03	3300					14.4			86
NOV	13	150	2.0	4100	.04	3400					14.4			86
DEC	14	155	2.1	2300		3500								
TOTAL	157	1653									140.8			836
AVG	2.2 cu. ft./ml.gal	138	2.3	2900	.04	4000						3.4	65	

REGION 5
Northeastern

DESIGN DATA

PROJECT Town of Haileybury WPCP

PROJECT NO.	1-0069-67	<u>PUMPING STATION</u>
DESIGN FLOW	0.350 mgd	Two - 625 IGPM @ 61 ft TDH One Diesel engine
BOD - Raw Sewage - Removal	170 mg/l 90%	<u>GRIT REMOVAL</u>
SS - Raw Sewage - Removal	200 mg/l 90%	Type: Manually cleaned channels Size: Two

AEROBIC DIGESTER

Volume: 15,000 ft³ or 93,400 gal
Loading: 4.3 ft³/capita

SEDIMENTATION

Volume: 12,100 ft³ or 75,500 gal
Detention: 5.7 hr @ 350,000 lpgd
Loading: Surface weir

CHLORINE CONTACT CHAMBER

Volume: 8600 gal
Detention: 35 min @ 0.35 mg

SCREENING

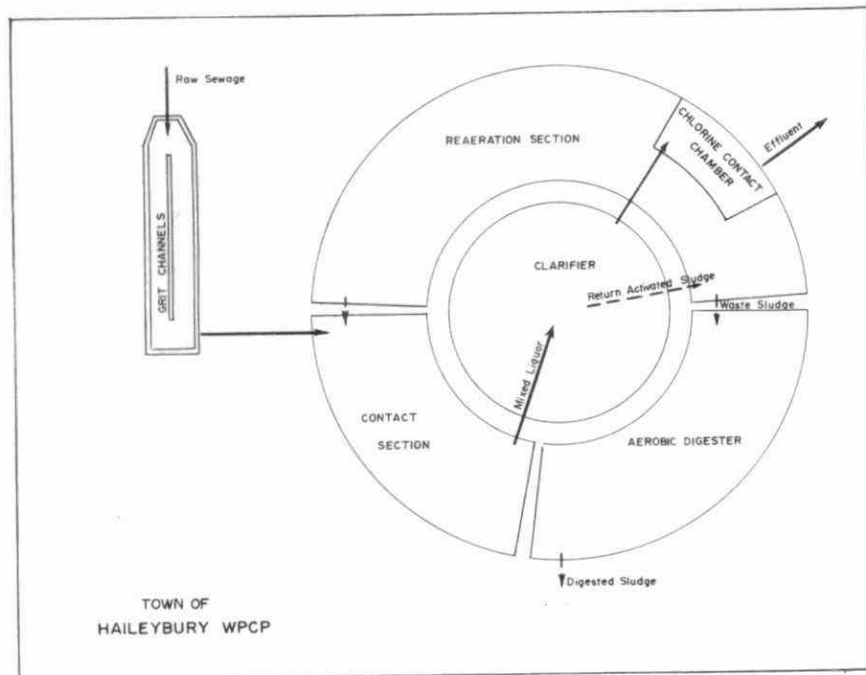
Bar Screen 1 3/4' openings

AERATION

Volume: 8,300 ft³ or 52,400 gal
Detention: 3.6 hr @ 0.35 mgd
Diffusers: S & L Aluminum

REAERATION SECTION

Volume: 21,330 ft³ or 132,900 gal
Detention: 7.6 hr @ max. return rate
of 417,600 lpgd



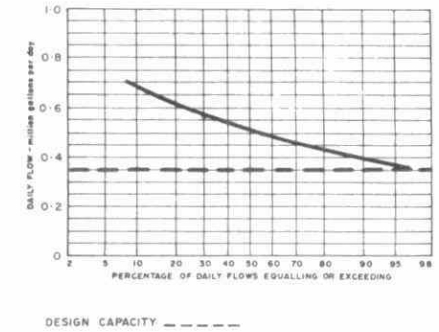
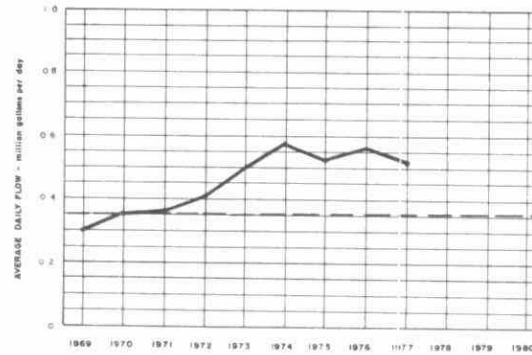
PLANT PERFORMANCE

SEWAGE

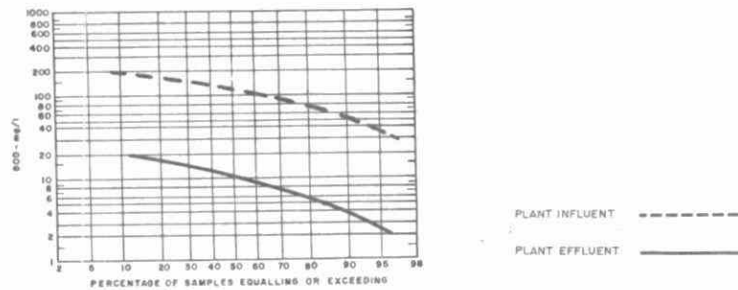
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	13.4	.43	.49	98	66	33	4	110	41	63	9	6.5	2.3
FEB	12.2	.44	.55	135	10	93	15	250	55	78	24	8.3	4.1
MAR	18.7	.61	.85	81	9	89	14	123	14	89	20	4.4	1.5
APR	21.1	.70	.79	54	5	91	10	80	6	93	16	3.7	1.8
MAY	16.9	.54	.70	117	3	97	19	201	15	93	31	7.4	2.9
JUNE	16.1	.54	.68	120	9	93	18	151	16	89	22	7.7	3.7
JULY	13.7	.44	.60	103	12	88	12	89	10	89	11	6.0	2.4
AUG	13.0	.42	.54	125	12	90	15	114	17	85	13	5.7	1.5
SEPT	14.9	.50	.69	155	8	95	22	285	5	98	42	6.6	0.3
OCT	16.9	.54	.69	105	14	87	15	503	18	96	82	6.3	2.0
NOV	16.5	.55	.82	150	15	90	22	170	29	83	23	7.0	2.5
DEC	15.8	.51	.77	190	14	93	28	160	21	87	22	7.3	2.5
TOTAL	189.2	-	-	-	-	-	197	-	-	-	314	-	-
AVG.		.52	.85	119	15	87	16	189	23	88	26	6.4	2.3
No. of Samples	-	-	-	25	23	-	-	28	27	-	-	25	24

HAILEYBURY WPCP

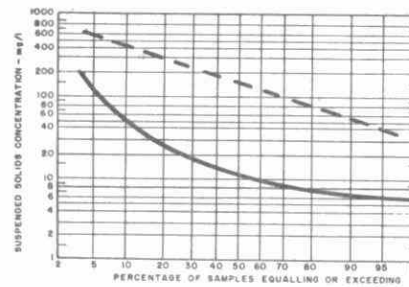
PROCESS DATA FLOWS



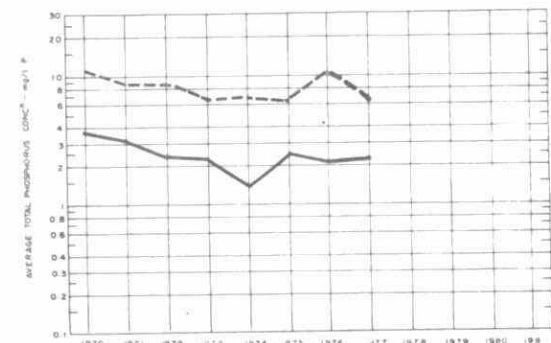
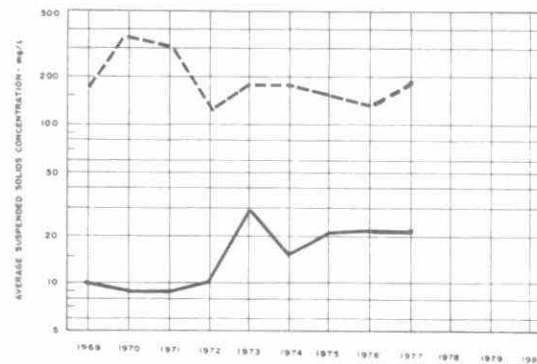
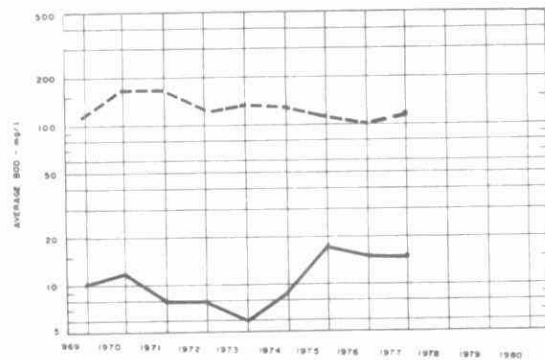
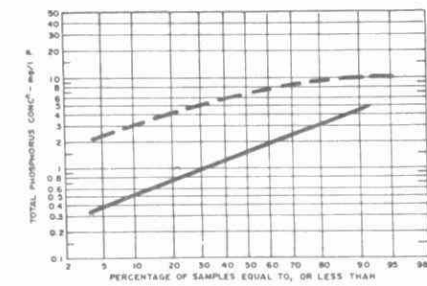
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

HAILEYBURY WPCP

MONTH	GRIT		CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	CL ₂ USED pounds	AVG DOSAGE mg/l	MLSS CONC. (CONTACT) mg/l	F/M day ⁻¹	MLSS CONC. REAERATION mg/l	AIR USED 1000 ft ³ lb 800	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	AMOUNT HAULED cubic yards
JAN	24			4500	.04	6200	13.7	51						
FEB	23			4200	.05	6500	3.4	38						
MAR	56			3300	.05	5700	4.3	8						
APR	38			3400	.04	5900	5.4							
MAY	26			4700	.05	7400	3.0	24						
JUNE	31	440	2.7	3200	.09	4500	3.2	123			80	19000		475
JULY	17	567	4.1	3600	.06	4700	4.7		15000					
AUG	45	532	4.1	3400	.05	6000	3.9	33						
SEPT	31	588	3.9	4200	.08	5900	2.4	57						
OCT	31	538	3.2	3800	.08	3800	3.7	21						
NOV	27	154	2.4	3100	.10	4900	2.5	33			80	14000		475
DEC	28			3400	.12	4500	2.1	6						
TOTAL	377	2819						394			160			950
AVG	2.0 cu ft/mil gal	564	3.4	3700	.07	5500	4.4		15000			17000		

DESIGN DATA

PROJECT Town of Iroquois Falls

PROJECT NO. 1-0096-67

TREATMENT Prefabricated Package Plant
Dorr Oliver - Long, 2 units.

DESIGN FLOW 0.9 MGD

DESIGN POPULATION 7150

PRETREATMENT

GRIT REMOVAL

2 channels

COMMUNITION

1 Comminutor and bypass channel
with manually cleaned screen.

SECONDARY TREATMENT

Total contact tank aeration volume:	17430 ft ³
Detention:	2.9 hrs.
Total reaeration tank volume:	34,866 ft ³
Detention (Based on 100% return):	5.8 hrs.
Aerobic Digester Volume:	31,366 ft ³

AIR SUPPLY

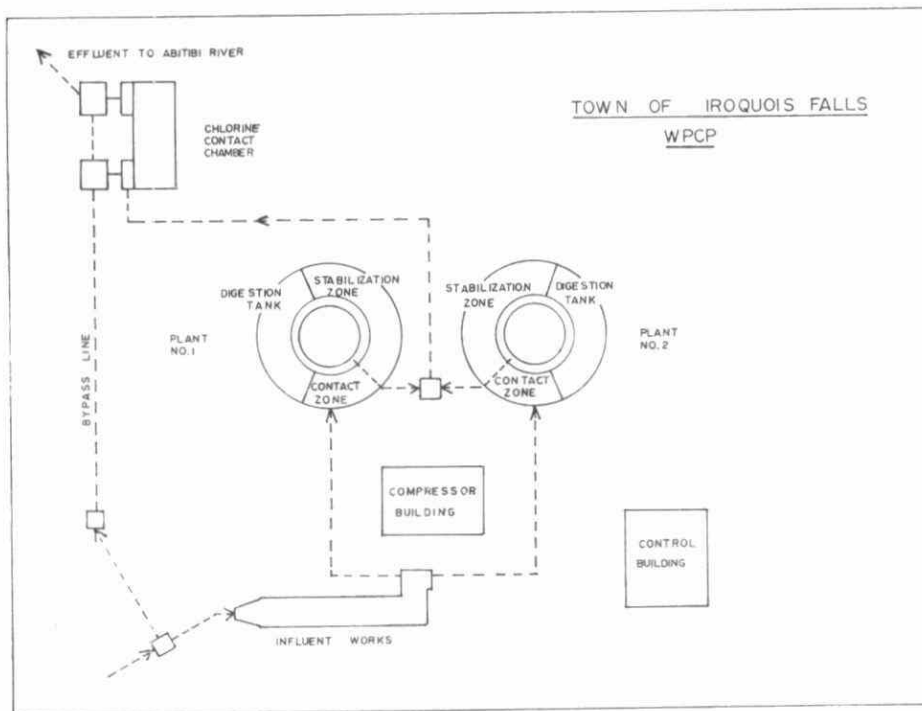
3 blowers @ 925 cfm and 75 h.p.

CLARIFIER

Two clarifiers 46.5 ft. dia. and 13.0 ft. SWD
Surface overflow rate: 265 gal/ft²/day.

CHLORINATION

Chlorine contact tank volume:	19,500 gal.
Detention:	30 min.

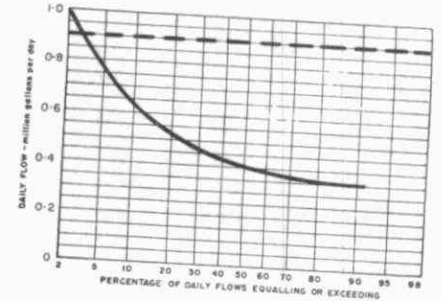


PLANT PERFORMANCE
SEWAGE

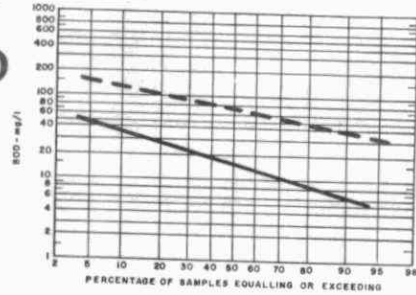
IROQUOIS FALLS WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	23.5	.76	.81	88	19	78	16.2	127	13	90	27	5.8	3.2
FEB	20.0	.72	.81	80	14	83	13.2	125	13	90	22	5.4	3.0
MAR	37.0	1.18	2.80	53	12	77	15.1	123	23	81	37	4.1	3.0
APR	39.4	1.31	3.29	60	11	82	14.4	126	10	92	34	3.4	1.8
MAY	27.8	.87	1.17	73	29	60	12.2	112	8	93	29	5.5	2.3
JUNE	22.4	.74	1.22	95	28	71	15.0	124	15	88	24	5.1	1.9
JULY	22.0	.72	.91	65	26	48	8.6	115	16	86	22	4.2	1.6
AUG	24.1	.78	1.15	125	7	94	28.4	162	11	93	36	4.1	1.8
SEPT	26.1	.86	1.74	55	17	69	9.9	105	13	88	24	5.1	1.5
OCT	22.6	.72	.98	90	10	89	18.0	113	10	91	23	5.2	3.3
NOV	28.9	.93	2.04	98	12	88	24.9	124	11	91	32	4.8	1.2
DEC	19.8	.63	.89	65	13	80	10.3	140	9	94	26	4.2	
TOTAL	313.2	-	-	-	-	-	194.2	-	-	-	351	-	-
AVG.	26.1	.86	MAXIMUM 3.29	79	17	78	16.2	125	13	90	29	4.8	2.4
No. of Samples	-	-	-	23	28	-	-	69	81	-	-	23	27

FLOWS

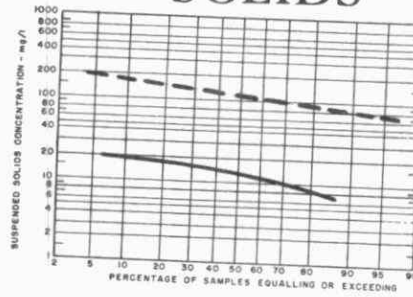


BIOCHEMICAL OXYGEN DEMAND

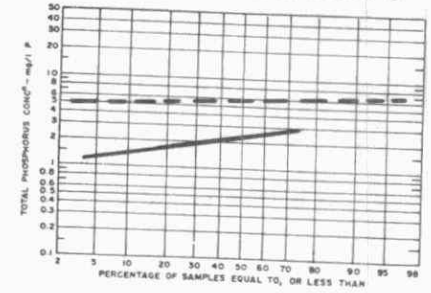


PLANT INFLUENT - - - - -
PLANT EFFLUENT ————

SUSPENDED SOLIDS



PHOSPHORUS



PLANT No. 1 TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER				
	QUANTITY REMOVED (182) cubic feet	Cl ₂ USED (182) pounds	AVG DOSAGE (182) mg/l	MLSS CONC. (CONTACT) mg/l	F/M day ⁻¹	MLSS CONC. (REAERATION) mg/l	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN				2000	.08	2900		210	11000		2000			
FEB				2300	.06	3400		60	16000		4000	73		
MAR	95			2400	.06	3200		102			4000	60		
APR	20			2800	.08	3900					4000	65		
MAY	20			2600	.06	4000		13	5000		5000	85		
JUNE	20	265	1.8	4300	.04	5100		164	13000		20	12000	60	120
JULY	10	380	1.7	4400	.02	5200		608	14000		10	10000	63	60
AUG	25	382	1.6	3600	.06	5200		868	11000			9000	60	
SEPT	30	443	1.7	4400	.04	5500		840	10000		12	14000	89	72
OCT	30	346	1.9	3700	.06	4300		1672	10000		28	11000	54	168
NOV	60			3700	.06	5400		840	11000		28	23000	67	168
DEC	30			3000	.04	3800		840	9000		6	5000	61	36
TOTAL	340	1816						6217			104			624
AVG	1.1 cu. ft./mill. gal.	363	1.6	3300	.05	4300		518	11000			8600	67	

TREATMENT DATA

PLANT No. 2

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER				
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG DOSAGE mg/l	MLSS CONC. (CONTACT) mg/l	F/M day ⁻¹	MLSS CONC. (REAERATION) mg/l	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN				1400	.12	2200	9.6							
FEB				1800	.08	2700	10.1	60	8000			3000	69	
MAR				3300	.04	4700	10.8	48	12000			6000	66	
APR				3000	.08	3700	6.8					5000	65	
MAY				2000	.06	3800	11.1	19	9000					
JUNE				4400	.06	4300	16.2	146	7000			7000		
JULY				4300	.02	5100	27.7	608	10000		8.1	13000	62	48
AUG				4200	.06	5400	5.6	868	12000		24.3	9000	60	144
SEPT				4000	.04	5200	14.6	840	11000		12.1	15000		72
OCT				3300	.04	4800	8.5	1940	8000		30.3	12000	59	180
NOV				3700	.06	5700	6.1	840	11000		62.7			372
DEC				2800	.04	4300	14.8				12.1	6000	78	72
TOTAL								5369			149.6			888
AVG	1.1 cu. ft./mill. gal.			3200	.05	4300	11.8	447	9100			8400	66	

DESIGN DATA

PROJECT
Town of Kirkland Lake WPCP

PROJECT NO.
1-0248-70

TREATMENT:
Contact Stabilization

DESIGN FLOW:
3.0 mgd

PRETREATMENT

SCREENING
Type: One mechanical screen
Size: 6.0 mgd max.

AERATED GRIT TANK
Size: 6.0 mgd

RAW SEWAGE PUMPS
Type: Five, SMART TURNER GWMPs
Size: 1300 cfm (each) @35' TDH

HOLDING TANK
Size: 0.25 mg

BIOLOGICAL TREATMENT

CONTACT TANK
Size: One 50' dia. x 15' swd
(184,000 I.G.)
Retention: 1.5 hr
Aerator Type: Mechanical

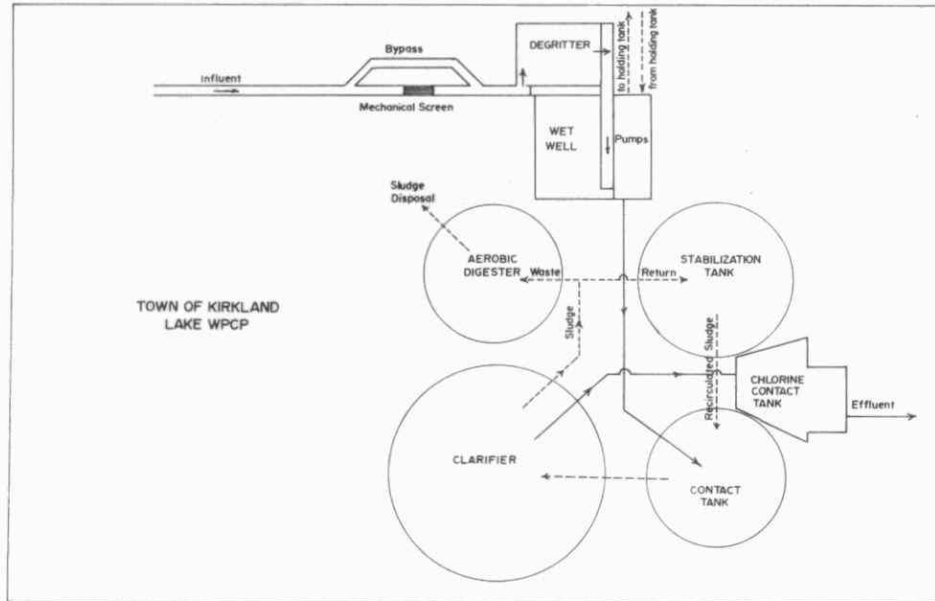
CLARIFIER
Size: One, 80' dia. x 10' swd
(314,000 I.G.)
Retention: 2.5 hr
Loading: Surface 670 gal/ft²/day
Weir 6350 gal/ft

SLUDGE STABILIZATION
Size: One, 56' dia. x 15' swd
(231,000 I.G.)

Aerator: Mechanical

CHLORINE TANK
Size: One, irregular shape 14.6' awl
(43,077 I.G.)
Retention: 21 min.

AEROBIC DIGESTER
Size: One, 50' dia. x 18.5' swd
(227,000 I.G.)



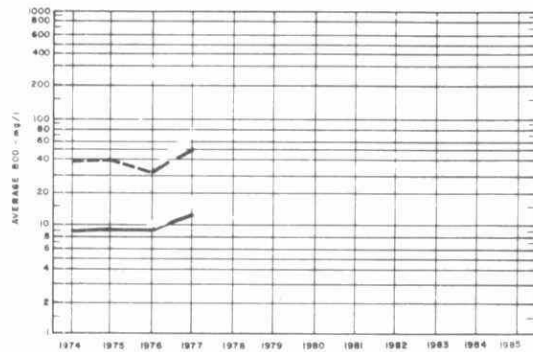
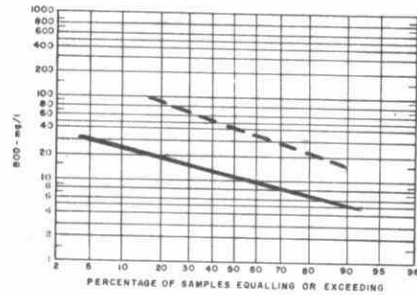
PLANT PERFORMANCE
SEWAGE

KIRKLAND LAKE WPCP

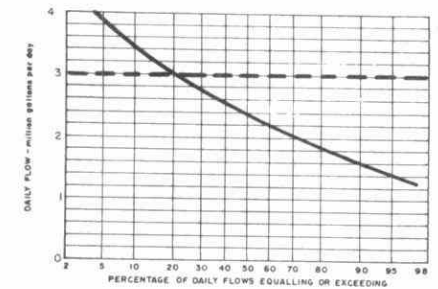
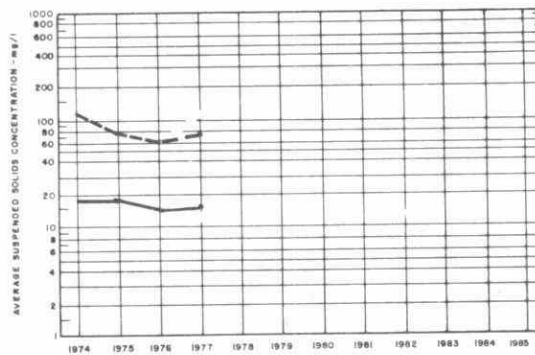
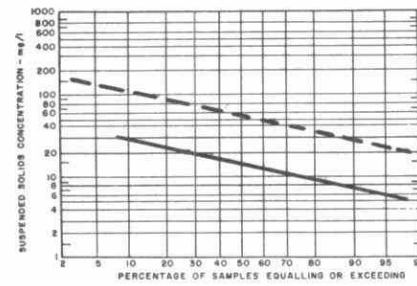
PROCESS DATA
FLOWS

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	93.6	3.0	3.6	34	12	65	21	40	24	40	15	2.2	1.5
FEB	85.4	3.1	3.2	36	11	69	21	40	17	58	20	2.6	1.0
MAR	108.9	3.5	4.8	13	8	38	5	39	22	44	19	1.2	0.5
APR	100.5	3.4	5.0	29	6	79	23	33	13	61	20	2.5	0.6
MAY	70.9	2.3	2.7	40	18	55	16	67	18	73	35	2.7	2.1
JUNE	63.3	2.1	3.1	37	17	54	13	53	11	79	26	3.1	1.4
JULY	59.2	1.9	2.8	73	5	93	40	90	7	92	49	4.1	1.0
AUG	64.2	2.1	4.1	100	13	87	56	94	14	85	51	5.1	1.3
SEPT	58.2	1.9	3.0	110	28	75	48	94	17	82	45	4.4	2.1
OCT	61.0	2.0	3.5	60	19	68	25	101	15	85	52	4.1	1.5
NOV	68.5	2.3	3.8	44	15	66	20	111	14	87	66	3.1	1.4
DEC	70.7	2.3	3.1	56	14	75	30	78	14	82	45	3.1	1.8
TOTAL	904.4	-	-	-	-	-	334	-	-	-	479	-	-
AVG	75.4	2.4	5.0	50	13	74	28	69	16	77	40	3.0	1.3
No. of Samples	-	-	-	24	24	-	-	77	76	-	-	24	24

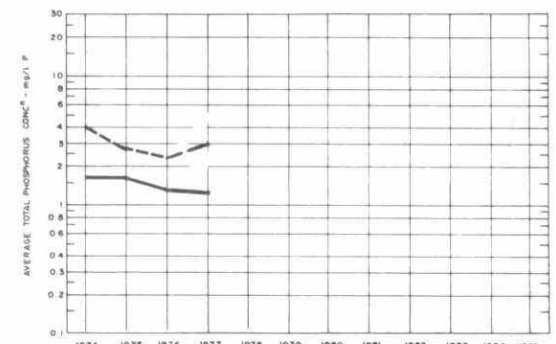
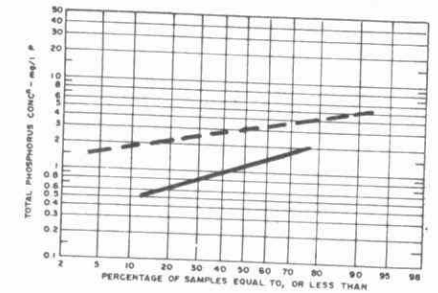
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

KIRKLAND LAKE WPCP

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER				
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG DOSAGE mg/l	MLSS CONC. (CONTACT) mg/l	F/M day ⁻¹	MLSS CONC. REAERATION mg/l	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	365			540	.17	2100		170	4000	77	81	11000	68	480
FEB	216			630	.16	2500		230	3000	90	64	1000	89	394
MAR	405			340	.11	1600		70	13000	81	97	11000	87	576
APR	405			320	.38	880		13			112	12000	64	665
MAY	318	252	N/A	800	.11	3000		60	1000	86	278	9000	70	1650
JUNE	297	148	N/A	670	.14	1800		370	2000	72	88	18000	75	522
JULY	284	2234	3.8	620	.26	1900		230	21000	88	102	16000	82	605
AUG	270	2343	3.6	600	.45	1500		220	3000	86	142	18000	82	842
SEPT	337	2204	3.8	400	.53	1400		220	1300	82	128	18000		760
OCT	297	1574	N/A	800	.18	2200		230	1400	75	160	18000	86	950
NOV	324			500	.19	1900		290	2000	83	128	15000	64	760
DEC	351			400	.34	1300		140	1000	94	112	17000	79	665
TOTAL	3869	8757						2243			1492			8859
AVG	4.3 cu-ft/mil gal	1094	3.7	550	.25	1800		187	1000	83	124	14000	77	738

DESIGN DATA

PROJECT Moosonee WPCP

PROJECT NO. 1-0002-66

TREATMENT

DESIGN FLOW 0.112 MIGD

DESIGN POPULATION 1,500

BOD - Raw Sewage - 254 mg/l
- Removal - 90 %

SS - Raw Sewage - 286 mg/l
- Removal - 85 %

PRELIMINARY TREATMENT

Comminution

Type: Chicago Pump Model 7B

CONTACT STABILIZATION

Contact Zone

Size: 9' x 11' x 12'
Volume: 7400 gal.
Retention: 1.6 hr.

Reaeration Zone

Size: 55.5' x 11' x 12'
Volume: 45,700 gal.
Retention: 9.8 hr.

Air Supply

Type: Hoffman
Size: Two, 312 cfm

Diffusers

Type: Shearusers
Spacing: 22'/tank @ 24" centres

Sedimentation

Type: Smith & Loveless
Size: Two, 20,300 gal.
Retention: 4.3 hr.
Loading: Surface 304 gal/ft²/day
Weir 3343 gal/ft/day

CHLORINATION

Type: Hypochlorination
W & T A&S&S

Chlorine Contact Chamber

Size: 2000 gal.
Retention: 26 min.

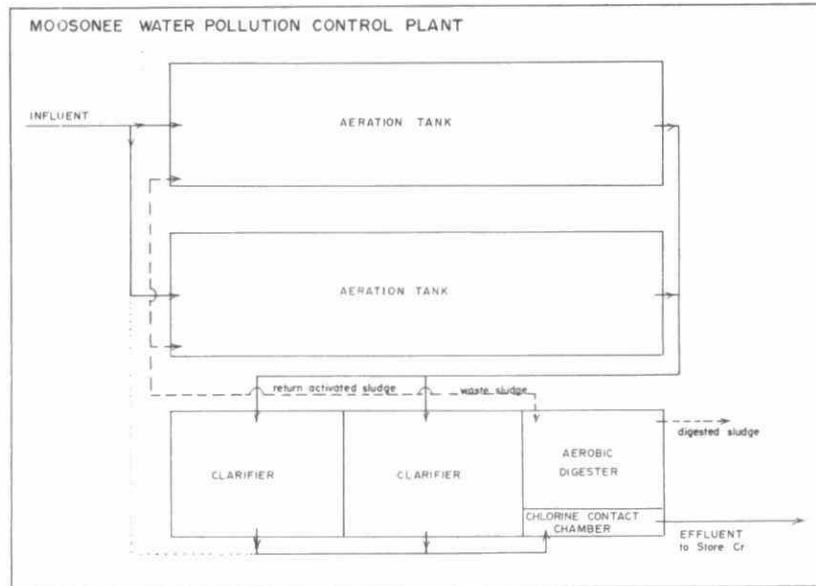
SLUDGE HANDLING

Digestion System - Aerobic

Size: One, 6960 gal.
One, 21,400 gal.

OUTFALL

To Store Creek

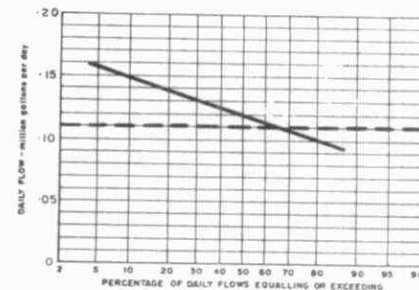
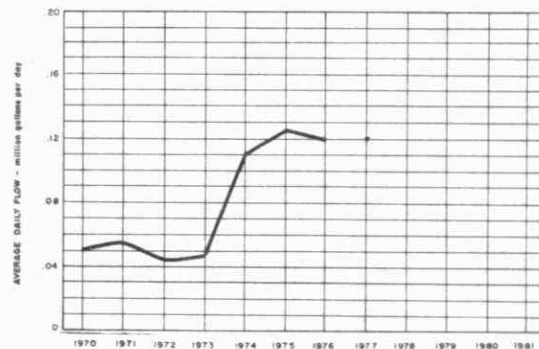


PLANT PERFORMANCE
SEWAGE

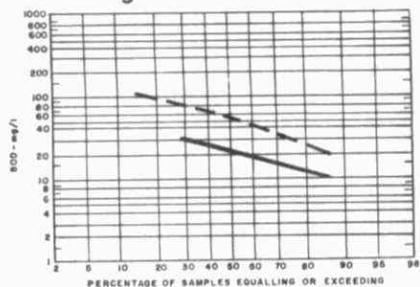
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	4.11	.13	.14	75	38	49	1.5	100	32	68	2.8	4.9	2.3
FEB	3.76	.13	.14										
MAR	4.30	.14	.14	26	24	8	0.09	50	17	66	1.4	2.2	0.8
APR	4.38	.15	.16										
MAY	3.04	.10	.11	40	16	60	0.7	99	13	87	2.6	2.6	0.9
JUNE				100	19	81		150	16	89			
JULY				DATA INCOMPLETE									
AUG				DATA INCOMPLETE									
SEPT				DATA INCOMPLETE									
OCT				DATA INCOMPLETE									
NOV	2.60	.086	.097										
DEC	3.26	.105	.127										
TOTAL	-	-	-	-	-	-	-	-	-	-	-	-	-
AVG.		.12	.16	59	25	58	1.2	100	21	79	2.9	3.4	1.4
No. of Samples	-	-	-	6	6	-	-	6	6	-	-	5	5

MOOSONEE WPCP

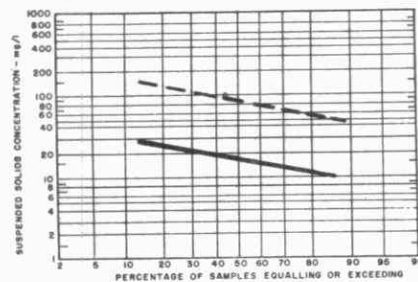
PROCESS DATA
FLOWS



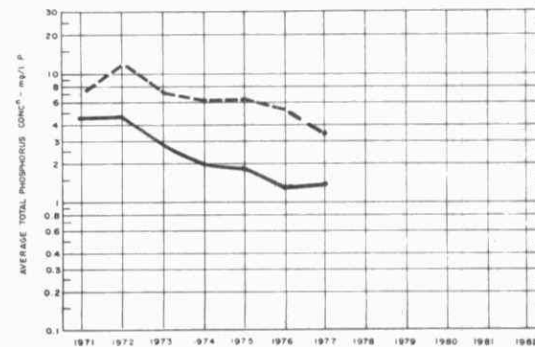
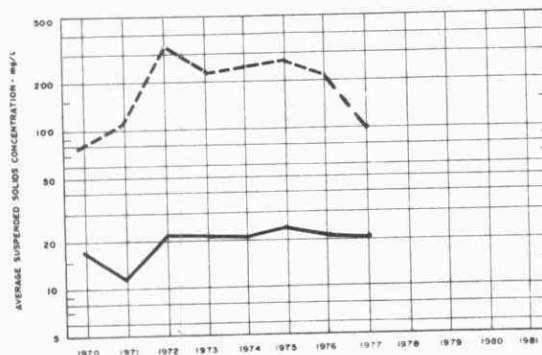
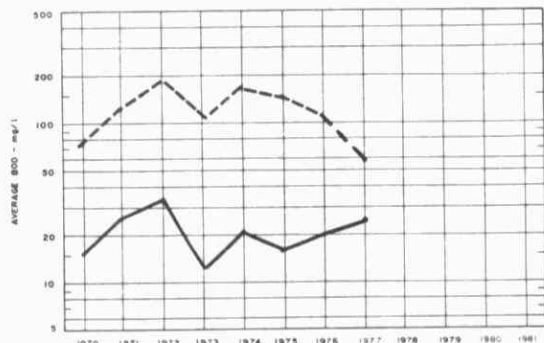
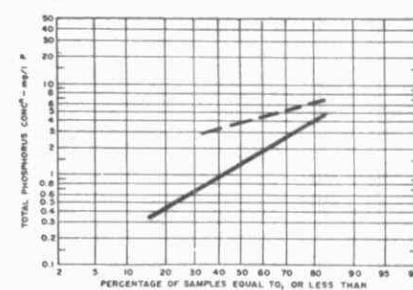
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	HYPOCHLORITE		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	12 % gallons	AVG DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN				3200	.06	5.3		2000	51		2000	44	
FEB				2900									
MAR				3800	.02	86.7		5000	60		5000	62	
APR				3000									
MAY		138	5.5	2900	.03	11.3		10000	51		7000	51	
JUNE				2600				8000	53		9000	53	
JULY													
AUG				DATA INCOMPLETE									
SEPT													
OCT													
NOV				3100									
DEC				3200									
TOTAL		138	-	-	-	-		-	-		-	-	
AVG	cu. ft/mil gal		5.5	3100	.04	34.4		6000	54		6000	53	

DESIGN DATA

Project City of Timmins
(Porcupine/S. Porcupine WPCP)

PROJECT NO: 1-0109-67

DESIGN FLOW: 0.75 MIGD

TREATMENT: Contact Stabilization

DESIGN POPULATION: 7,500

DESIGN BOD: Raw Sewage 170 mg/l
SS : Raw Sewage 200 mg/l

PRETREATMENT

RAW SEWAGE PUMPS

Type: Variable-speed
Size: Two, each 1590 IGPM

GRIT REMOVAL

Type: manually cleaned channels
Two, each 36.5' x 2' x 0.7' awl
(319 I.G. each)
Retention: (each) 0.6 min.

COMMINUTION

Size: Motor 3/4 HP

BIOLOGICAL TREATMENT

Two EIMCO ENVIROTECH UNITS
(One described hereunder)

CONTACT TANK

Volume: 30264 I.G.
Retention: 1.9 hr

REAERATION TANK

Volume: 92,352 I.G.
Retention: 5.9 hr

CLARIFIER

Volume: 92,000 I.G.
Retention: 5.9 hr
Loading: surface 390 gal/ft²/day

AEROBIC DIGESTER NO. 1

Volume: 38,000 I.G.

AEROBIC DIGESTER NO. 2

Volume: 18720 I.G.

CHLORINATION

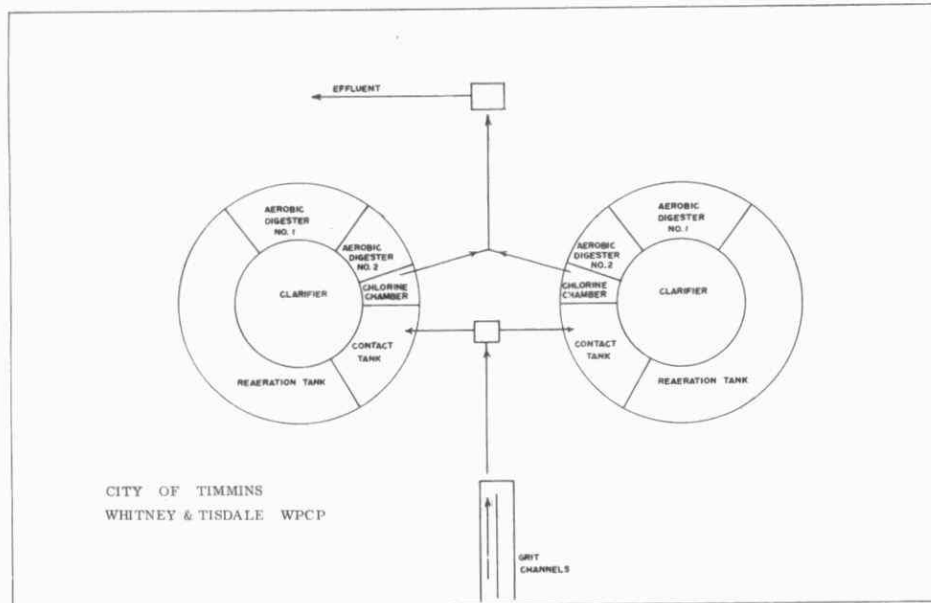
(common to both plants)

CHLORINE CONTACT CHAMBER

Volume: 8,700 I.G.
Retention: 33 min.

CHLORINATOR

Size: One, 100 lb/day max feed rate

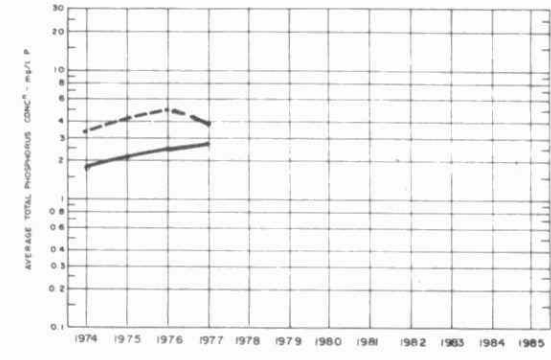
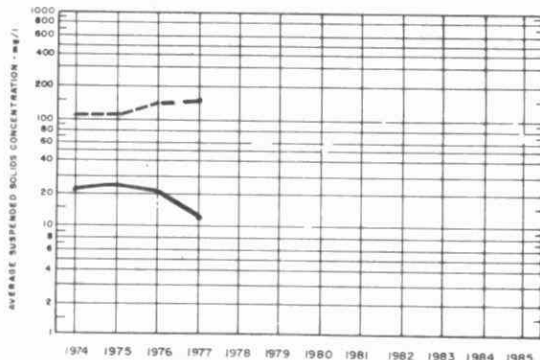
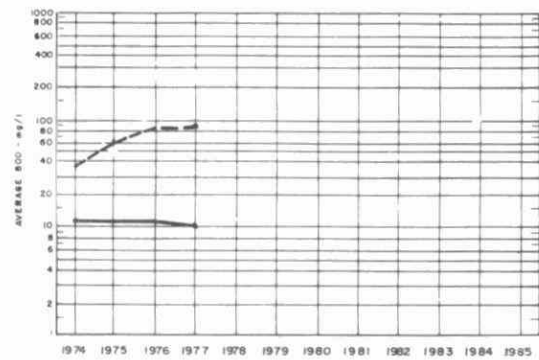
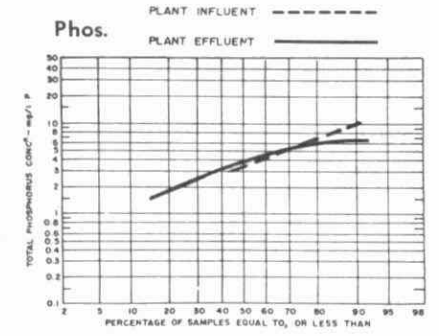
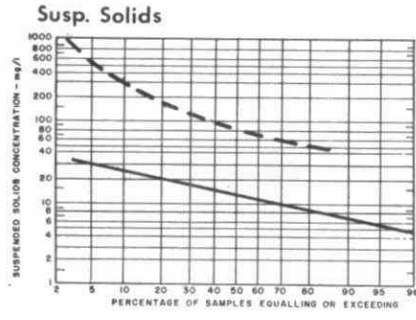
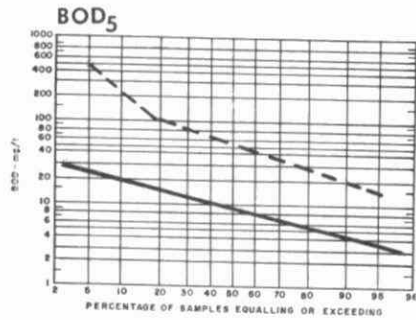
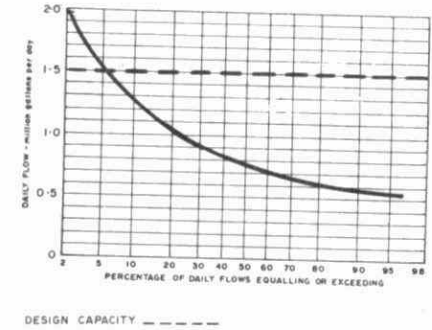
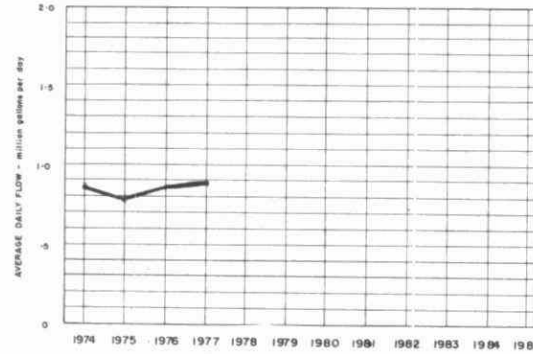


PLANT PERFORMANCE
SEWAGE

WHITNEY & TISDALE WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	19.7	.64	.74	98	16	84	16	95	14	85	16		
FEB	16.6	.59	.74	120	14	88	18	105	11	90	16	7.6	2.5
MAR	37.7	1.22	2.30	42	8	81	13	100	20	80	30		
APR	47.6	1.59	2.33	49	22	55	13	102	17	83	40	2.8	1.5
MAY	26.5	.85	1.17	45	10	78	9	100	13	87	23	5.2	2.4
JUNE	24.3	.81	1.56	373	6	98	89	630	13	98	150		
JULY	23.2	.75	1.04	44	5	89	9	117	9	92	25		
AUG	22.2	.72	1.35	78	7	91	16	76	10	87	15	4.5	4.0
SEPT	28.8	.96	1.76	95	4	96	26	179	13	93	50		
OCT	22.5	.73	.90	46	6	87	9	74	17	77	13	3.1	3.0
NOV	30.2	1.01	1.80	34	8	76	8	117	11	91	32	2.6	1.6
DEC	19.5	.63	.85	28	12	57	3	61	15	75	9	2.1	3.2
TOTAL	318.8	-	-	-	-	-	258	-	-	-	445	-	-
AVG.	26.6	.87	2.33	91	10	89	21	154	13	92	37	3.9	2.7
No. of Samples	-	-	-	20	37	-	-	71	88	-	-	8	12

FLOWS



TREATMENT DATA

MONTH	(PLANT A+B)		PLANT A				PLANT A			(PLANT A+B)				
	GRIT	CHLORINATION	AERATION			WASTE SLUDGE			AEROBIC DIGESTER					
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG DOSAGE mg/l	MLSS CONC. (CONTACT) mg/l	F/M day ⁻¹	MLSS CONC. REAERATION mg/l	AIR USED 1000 ft ³ lb BOO	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	AMOUNT HAULED cubic yards
JAN	36			3400	.06	4500	5.7	62	7000	74				
FEB	62			2600	.07	4500	4.2	8	7000	77				
MAR	85			5600	.002	11000	4.1	42	21000	59				
APR	111			3900	.06	6100	3.8	52	16000	58	64	17000		380
MAY	76	360	2.6	3800	.03	6000	6.1	73	12000	58	108	22000		641
JUNE	97	688	2.8	3500	.19	7300	0.6	100	12000	63	80	21000		475
JULY	79	778	3.4	5100	.02	9900	11.5	36	17000	59	58	23000		344
AUG	101	704	3.2	5500	.03	9600	5.9	32	16000	61	54	22000	55	321
SEPT	81	795	2.8	4200	.05	8900	3.2	50	16000	62	100	25000		594
OCT	77	806	3.6	4400	.02	7500	9.6	60	15000	66	100	24000		594
NOV	76	521	2.9	4900	.03	5200	10.9	52	15000	66	32	39000		190
DEC	91			3900	.01	7000	26.5	36	11000	73	70	17000		415
TOTAL	972	4652						603			666			3954
AVG	3.0 cubic feet/mil.gall	775	3.1	4200	.06	7300	7.7	50	14000	65		23000	55	

TREATMENT DATA

MONTH	(PLANT A+B)		PLANT B				PLANT B			(PLANT A+B)				
	GRIT	CHLORINATION	AERATION			WASTE SLUDGE			AEROBIC DIGESTER					
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG DOSAGE mg/l	MLSS CONC. (CONTACT) mg/l	F/M day ⁻¹	MLSS CONC. REAERATION mg/l	AIR USED 1000 ft ³ lb BOO	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	AMOUNT HAULED cubic yards
JAN				4400	.04	6500	5.6	52	9000	75				
FEB				3700	.05	6300	4.2	8	8000	75				
MAR				5300	.03	66000	4.1	40	22000	55				
APR				4100	.06	5900	4.1	62	14000	54				
MAY				3900	.02	6500	6.7	79	18000	59				
JUNE				4400	.17	8000	0.6	84	14000	62				
JULY				5000	.02	10000	1.1	34	13000	52				
AUG				6200	.02	11000	5.9	46	14000	59				
SEPT				4100	.05	9400	3.4	42	13000	59				
OCT				4600	.02	8900	10.3	56	15000	65				
NOV				2300	.02	9400	11.5	44	11000	67				
DEC				3900	.01	8400	26.5	40	11000	69				
TOTAL								587						
AVG				4300	.04	8100	7.0	49	14000	63				

REGION 6
Northwestern

DESIGN DATA

Project Ear Falls Twp WPCP
 Project No. 1-0061-67
 Design Flow 0.14 MGD
 Design BOD 280 mg/l

Design SS 310 mg/l

LIFT STATION:

Pumps: 2 Type: FLYGT Star Delta
 Size: 1750 rpm

GRIT CHANNELS:

2, 1.6' w x 15.0' l x 1.8' swd equipped with bar screens
 Volume (each) 270 J.G. Detention (each) 3 min.

OXIGEST PLANT

(Smith & Loveless)

AERATION TANK:

(Mixing and Reaeration zones)
 18.65' w x 15.25' swd x 262° arc
 Volume: 58,200 I.G. Detention 10.0 hours
 Comminutor: Type: HELIGEAR Size: 1725 rpm, 1/2 HP
 Blowers: 3 type ROOTS-CONNERSVILLE
 Size: 925 rpm 15 HP 275 cfmct 7 psi

CLARIFIER:

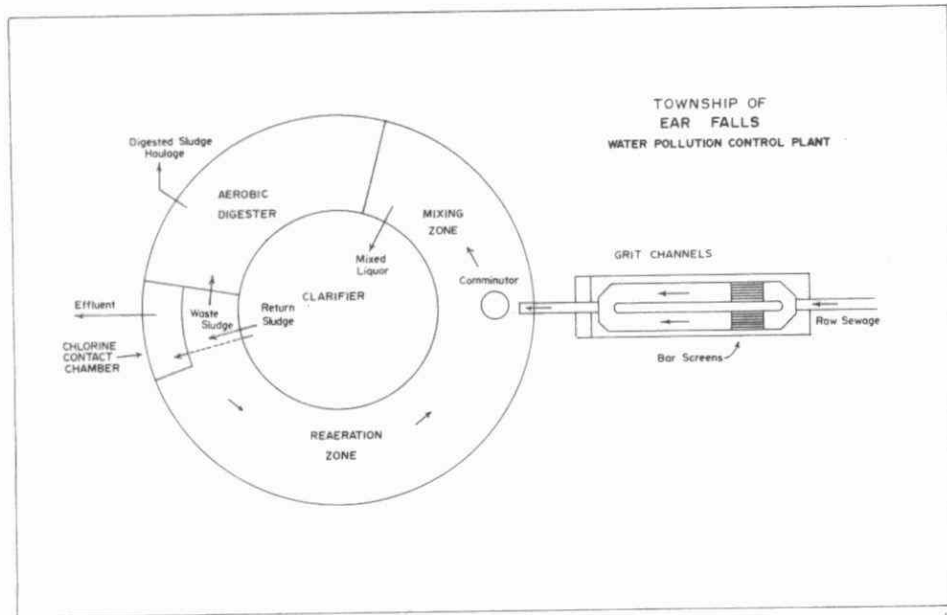
19.25' l.d. x 12.8' swd
 Volume 28,000 I.G. Detention 4.8 hours

AEROBIC DIGESTER:

19.65' w x 15.25' swd x 98° arc
 Volume 23,800 I.G. Detention 4.1 hours

CHLORINE CONTACT CHAMBER:

3.5w x 15.25' swd x 30° arc
 Volume 3350 I.G. Detention 34 minutes
 Chlorinator: Type: Wallace & Tiernan
 Size: 20 gpm



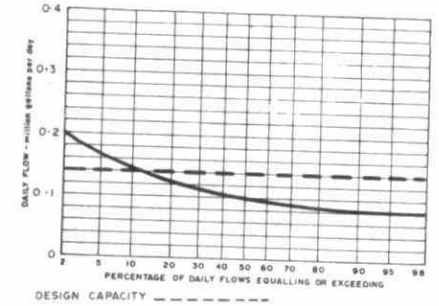
PLANT PERFORMANCE

EAR FALLS WPCP

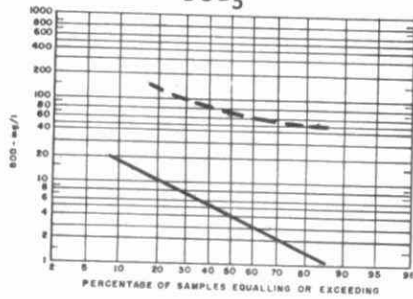
SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	3.03	.098	.13	130	12	91	3.6	190	10	95	5.4	8.1	2.0
FEB	2.84	.101	.11	85	2	98	2.4	110	15	86	2.7	5.3	3.5
MAR	3.32	.107	.19	120	5	96	3.8	180	5	97	5.8	6.2	1.9
APR	3.71	.124	.14	120	5	96	4.3	130	20	85	4.1	6.3	2.5
MAY	3.88	.125	.17	200	1	99	5.4	140	20	50	.8	7.7	2.3
JUNE	4.48	.149	.27	60	4	93	2.5	100	5	95	4.2	4.5	
JULY	4.20	.135	.17	66	8	87	2.4	90	20	77	2.9	5.2	1.0
AUG	4.41	.142	.26	130	40	69	3.9	320	65	79	11.2	6.2	4.0
SEPT	4.10	.136	.32										
OCT	3.25	.104	.12	200	7	96	6.3	340	10	97	10.7	6.8	1.4
NOV	2.97	.99	.14	85	12	85	2.1	130	20	84	3.2	6.2	1.7
DEC	3.64	.117	.16	95	18	81	2.8	140	40	71	3.6	6.8	3.2
TOTAL	43.83	-	-	-	-	-	48.2	-	-	-	65.7	-	-
AVG.		.120	MAXIMUM .32	117	7	94	4.0	170	20	88	5.4	6.3	2.3
No. of Samples	-	-	-	11	11	-	-	11	11	-	-	11	10

FLOWS

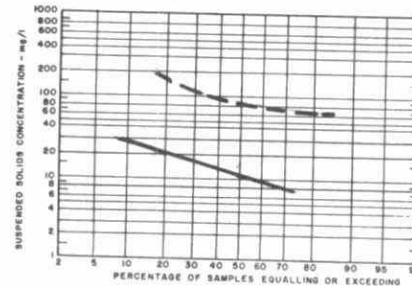


BOD₅

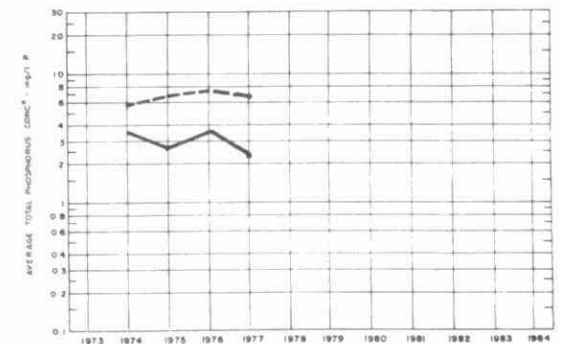
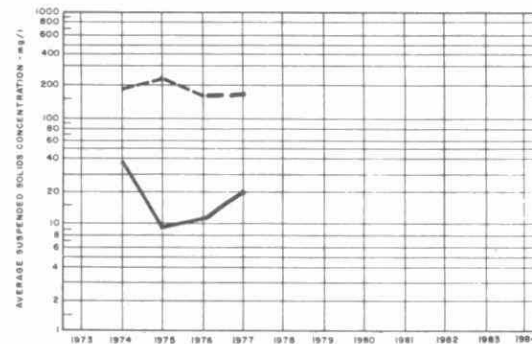
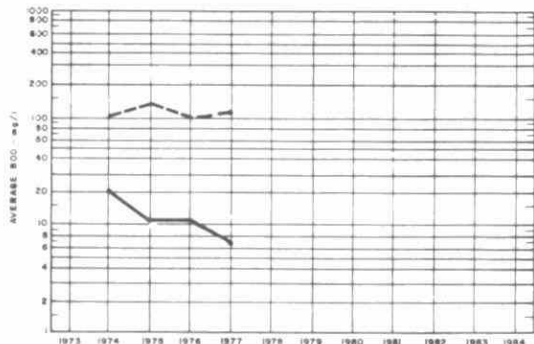
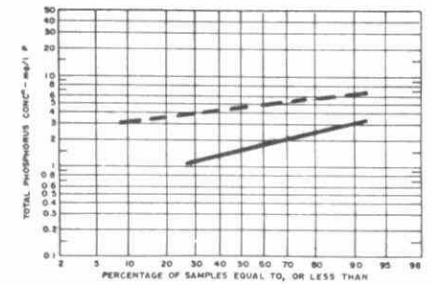


PLANT INFLUENT - - - - -
 PRIMARY EFFLUENT
 PLANT EFFLUENT _____

Susp. Solids



Phos.



TREATMENT DATA

EAR FALLS WPCP

MONTH	GRIT	HYPOCHLORITE		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			AMOUNT HAULED cubic yards	
	QUANTITY REMOVED subk feet	12 % gallons	AVG DOSAGE mg/l	MLSS CONC. (CONTACT) mg/l	F/M ca ₂ -1	MLSS CONC. REAERATION mg/l	AIR USED 1000 ft ³ lb BOD	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l		VOL SOLIDS %
JAN	4.5			3100	.06	3700						29000	51	
FEB	2.0			2000	.06	2600						39000	53	
MAR	6.4			1800	.10	2400						45000	54	
APR	8.0			1700	.13	2000					24.0	2000	63	142
MAY	4.1	125	4.2	1800	.20	2200								
JUNE	10.0	130	3.4	2500	.05	3400								
JULY	5.0	115	3.2	3100	.04	4000								
AUG	15.0	90	3.0	1800	.14	2400								
SEPT	11.5	95	3.1											
OCT	10.5	95	3.5	4400	.07	5400					12.0			71
NOV	17.5	72	2.4	590	.08	2000					8.3			49
DEC	9.0	30	8.2	3500	.04	4400								
TOTAL	103.5	752									44.3			262
AVG	23.6 <small>sq ft/mil gal</small>		2.9	2000	.08	2900						28000	55	

DESIGN DATA

PROJECT Twp of Longlac WPCP
 Project No: 1-0014-66
 Treatment: Contact Stabilization
 Design Flow: 0.21 MIGD
 BOD: Raw Sewage 425 lb. BOD/day

PRETREATMENT

GRIT CHANNELS:
 Two, each 21' x 1.5' x 2' swd
 Volume (each): 393 I. Gal.
 Detention (each) 2.7 min.

COMMUNUTOR:
 Type: A 10R

BIOLOGICAL TREATMENT

MIXING TANK:
 Volume: 26,000 I. Gal. Detention: 3 hours

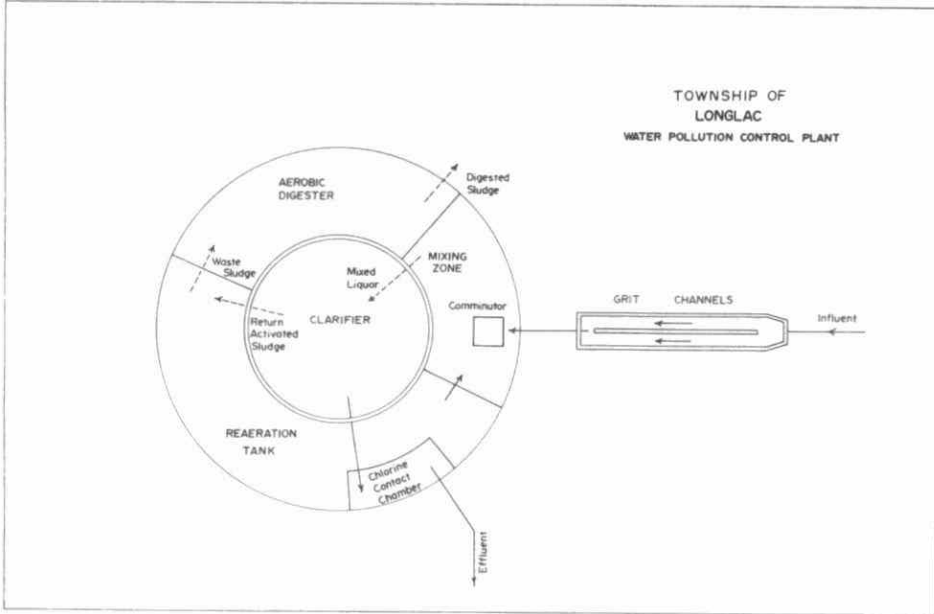
SETTLING TANK
 Volume: 37,000 I. Gal. Detention: 4.2 hours
 Overflow Rate: 577 I. Gal./ft²/day

REAERATION TANK:
 Volume: 66,000 I. Gal.

Blowers: Two Type: SUTORBILT 8HB
 Size: 590 cfm at 9 psi

AEROBIC DIGESTER:
 Volume: 46,800 I. Gal.

CHLORINE CONTACT CHAMBER:
 Volume: 4300 I. Gal.
 Detention: 30 min.

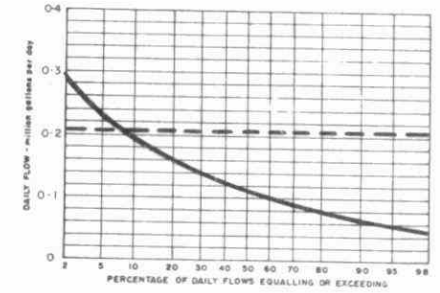
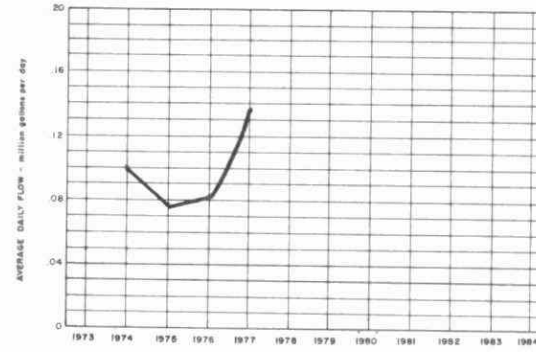


PLANT PERFORMANCE
SEWAGE

LONGLAC TWP. WPCP

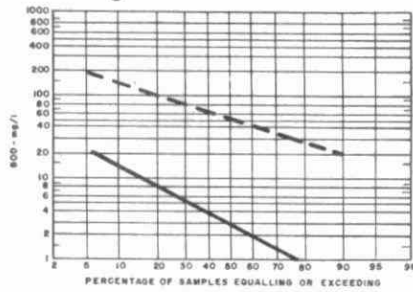
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10^3 pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10^3 pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN	2.51	.081	.097										
FEB	1.75	.062	.068	210	35	83	3.1	280	25	91	4.5	12.0	4.0
MAR	3.45	.113	.349	80	4	95	2.7	170	10	94	5.6	3.1	1.0
APR	7.28	.242	.421										
MAY	4.23	.136	.172	29	17	41	.5	113	10	91	4.4	4.4	1.7
JUNE	5.89	.196	.643	150	2	98	8.7	420	2	99	24.6	9.0	.7
JULY	5.35	.172	.458	182	3	98	9.6	657	3	99	35.0	5.1	.6
AUG	4.14	.133	.378	175	4	97	7.1	215	3	98	8.8	6.3	.7
SEPT	4.43	.147	.262	75	2	97	3.2	95	2	97	4.1	4.3	.6
OCT	4.04	.130	.230	101	2	98	4.0	131	2	98	5.2	5.8	1.1
NOV	3.97	.132	.167	92	1	98	3.6	166	3	98	6.4	6.6	1.1
DEC	2.96	.095	.167	77	10	87	2.0	120	5	95	3.4	5.4	1.9
TOTAL	50.00	-	-	-	-	-	52.5	-	-	-	110.0	-	-
AVG		.136	.643	112	7	93	4.3	225	5	97	9.1	6.0	1.2
No. of Samples	-	-	-	18	17	-	-	18	18	-	-	18	17

PROCESS DATA
FLOWS



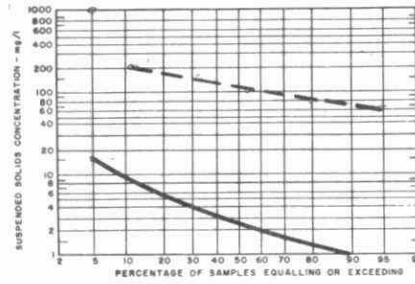
DESIGN CAPACITY -----

BOD₅

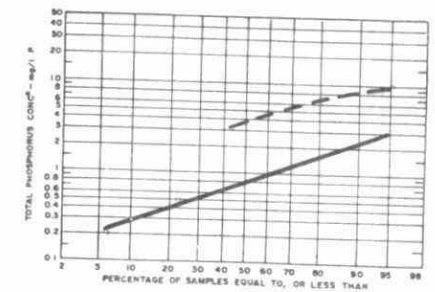


PLANT INFLUENT -----
PRIMARY EFFLUENT
PLANT EFFLUENT _____

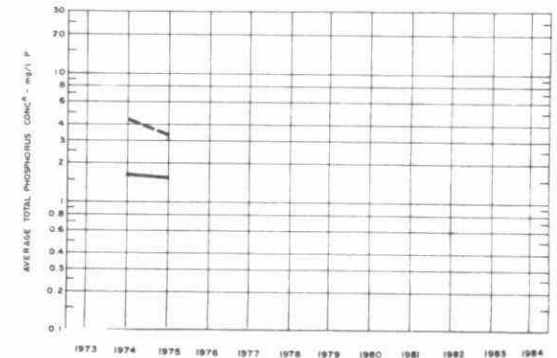
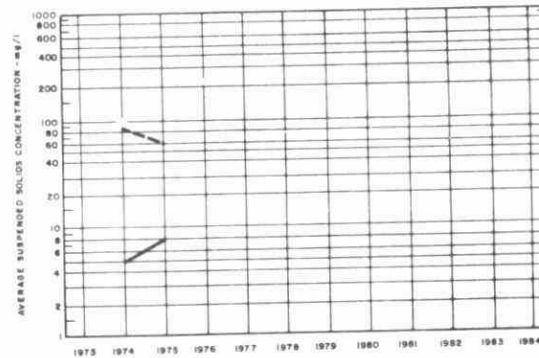
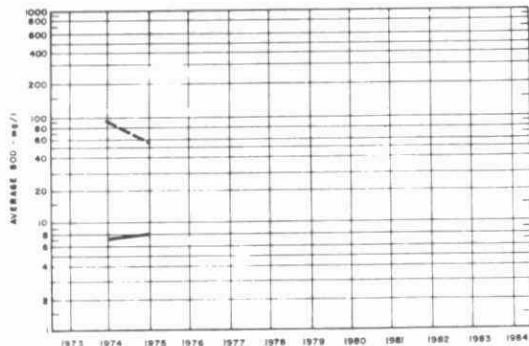
Susp. Solids



Phos.



PLANT INFLUENT -----
PLANT EFFLUENT _____



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER				
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG DOSAGE mg/l	MLSS CONC (CONTACT) mg/l	F/M day ⁻¹	MLSS CONC REAERATION mg/l	AIR USED 1000 ft ³ lb BOO	QUANTITY SOLIDS 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	5	344	13.7											
FEB	4	277	15.8	2000	.25									
MAR	39	365	10.5	2300	.15									
APR	42	373	5.1											
MAY	12	413	9.7	3600	.04									
JUNE	30	391	6.6	2300	.49									
JULY	33	381	7.1	3500	.34						18.0			106
AUG	27	323	7.7	2300	.38									
SEPT	20	310	.9	1800	.23						16.0			94
OCT	8	312	7.7	2500	.20									
NOV	3	300	7.6	1900	.24			7.5						
DEC	1	299	10.0	1800	.15			24.9						
TOTAL	224	4088						32.4			34.0			200
AVG.	4.4 cu ft/mil gal		8.2	2400	.24									

DESIGN DATA

PROJECT Red Lake Twp. WPCP
 PROJECT NO. 1-0040-66
 TREATMENT Contact Stabilization
 DESIGN FLOW 0.3 mgd
 BOD - Raw Sewage 510 lb/day

RAW SEWAGE PUMPING:
 Pumping Station 1
 Two, 430 USGPM at 68' TDH

Pumping Station 2
 Two, 125 USGPM at 51' TDH

PRETREATMENT

GRIT CHANNELS:
 Two, each 20' x 2' x 2'8" swd
 Volume: (each) 650 I. Gal. Detention: (each) 3 min.

BAR SCREENS:
 $\frac{1}{4}$ " x 2" steel bars on 2" centers

BIOLOGICAL TREATMENT

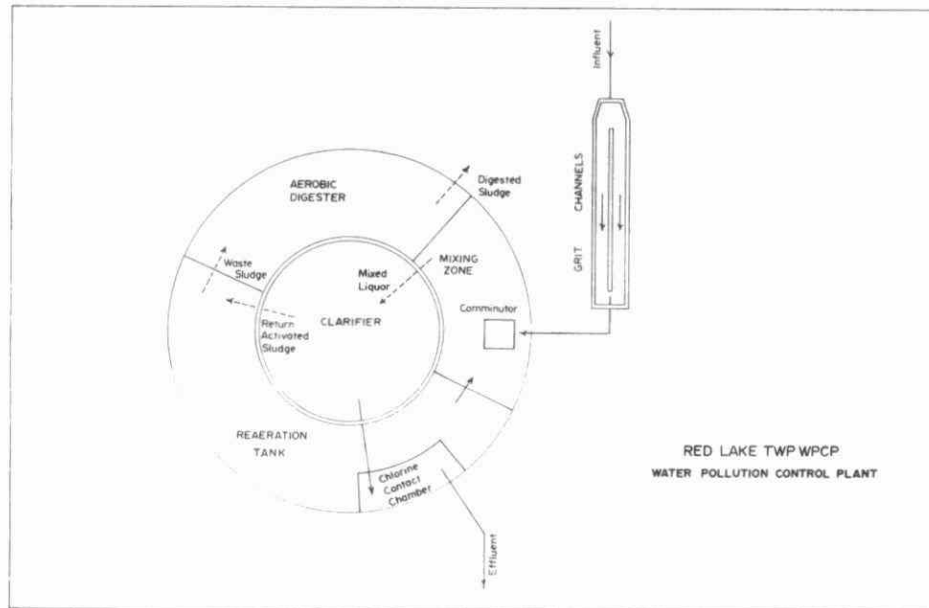
MIXING TANK:
 Volume: 33,400 I. Gal.
 Contact Time: 2.7 hours

REAERATION TANK:
 Volume: 77,400 I. Gal.

CLARIFIER:
 25'8" dia. x 15' swd
 Volume: 48,200 I. Gal.
 Detention: 3.9 hours
 Overflow Rate: 580 I. Gal/ft²/day

AEROBIC DIGESTER:
 Volume: 48,000 I. Gal.

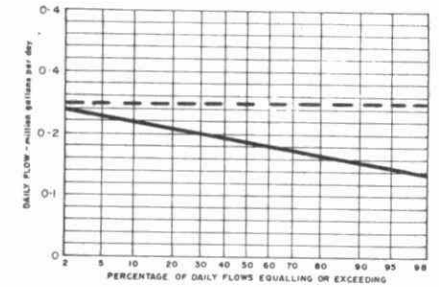
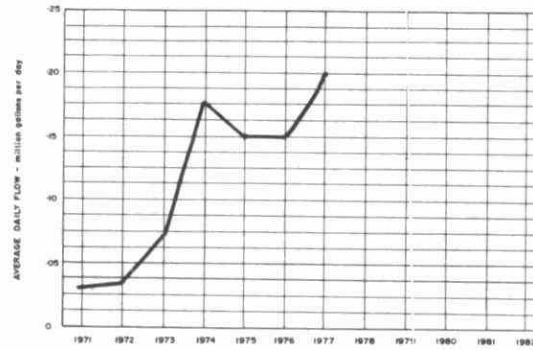
CHLORINE CONTACT CHAMBER:
 Volume: 8400 I. Gal.
 Detention: 40 min.



SEWAGE

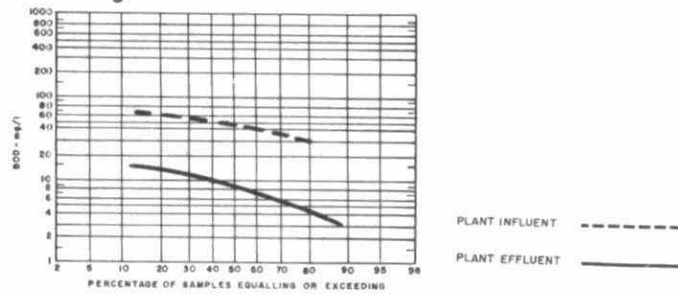
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION	10 ³ pounds	INFLUENT	EFFLUENT	REDUCTION	10 ³ pounds	INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%		mg/l	mg/l	%		mg/l P	mg/l P
JAN	5.73	.19	.21	54	17	69	2.1	70	20	71	2.8	4.1	3.5
FEB	5.90	.21	.22	90	29	68	3.6	90	35	61	3.2	5.3	3.6
MAR	6.53	.21	.28	70	25	64	2.9	85	25	71	3.9	4.4	4.1
APR	6.18	.21	.23	55	10	82	2.8	65	25	62	2.5	3.6	3.3
MAY	5.34	.18	.20	90	6	93	4.5	110	15	86	5.1	11.0	3.4
JUNE	5.08	.17	.22	140	2	99	7.0	130	15	88	5.8	5.7	6.9
JULY	6.17	.20	.26	43	16	62	1.6	51	15	70	2.2	3.1	2.2
AUG	6.43	.21	.24	62	10	83	3.3	160	11	93	9.5	4.0	2.4
SEPT	7.23	.24	.46										
OCT	6.18	.19	.30	85	9	89	4.7	260	15	94	15.1	4.7	2.5
NOV	5.98	.20	.28										
DEC	7.47	.24	.26	72	9	87	4.7	100	15	85	6.3	6.1	2.2
TOTAL	74.22	-	-	-	-	-	43.0	-	-	-	74.2	-	-
AVG.		.20	MAXIMUM .46	71	13	81	3.5	117	17	85	6.2	4.9	3.1
No. of Samples	-	-	-	14	14	-	-	14	14	-	-	12	13

PROCESS DATA FLOWS

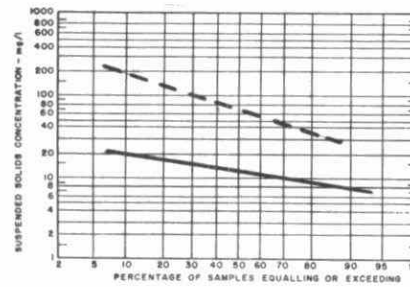


DESIGN CAPACITY 0.25 MGD

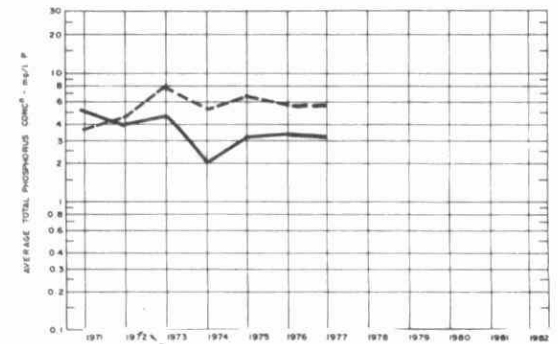
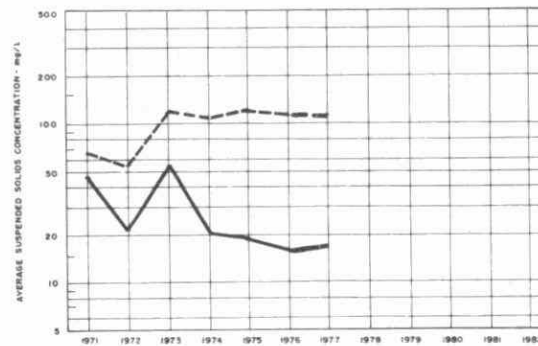
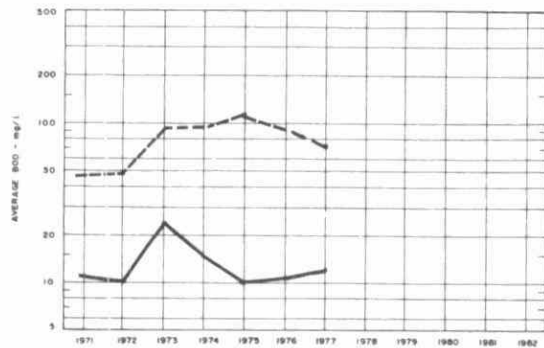
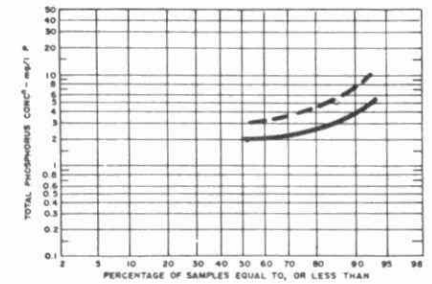
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER				
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG DOSAGE mg/l	MLSS CONC. (CONTACT) mg/l	F/M day ⁻¹	MLSS CONC. REAERATION mg/l	AIR USED 1000 ft ³ lb BOO	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	AMOUNT HAULED cubic yards
JAN		156	2.7	3000	.01	10600					27000			
FEB		169	2.8	4100	.03	7600					26000			
MAR	10	279	4.3	2700	.02	7800					27000			
APR	9	192	3.1	1900	.02	8800					25000			
MAY		169	3.1	1400	.04	4600					18000			
JUNE		159	3.1	3000	.04	6600					19000			
JULY	4	179	2.9	3400	.02	5500					17000			
AUG	3	199	3.1	4000	.01	9500					29000			
SEPT	10	192	2.7							18.0	23000			106
OCT	5	197	3.2	4300	.01	13400								
NOV	13	198	3.3								24000			
DEC	12	244	3.3	4300	.02	10600								
TOTAL	66	2333								18.0				106
AVG	.8 cu.ft./mill gal		3.1	3200	.02	8500					23000			

HIGH RATE ACTIVATED SLUDGE PLANTS

REGION 1
Southwestern

DESIGN DATA

PROJECT Town of Meaford WPCP
 PROJECT NO. 1-0003-66
 TREATMENT High Rate Activated Sludge
 DESIGN FLOW 0.86 mgd

COMMINUTOR

Type: Condux type 400
 Max. Capacity - 2.58 mgd

AERATION TANKS

2 tanks, each 30'0" dia x 19'3" swd
 Capacity: 170,000 I.G. total
 Detention: 4.7 hours

Aerators

Type: 2 mechanical Ames-Crosta
 driven by 50 hp electric motors

SECONDARY CLARIFIER

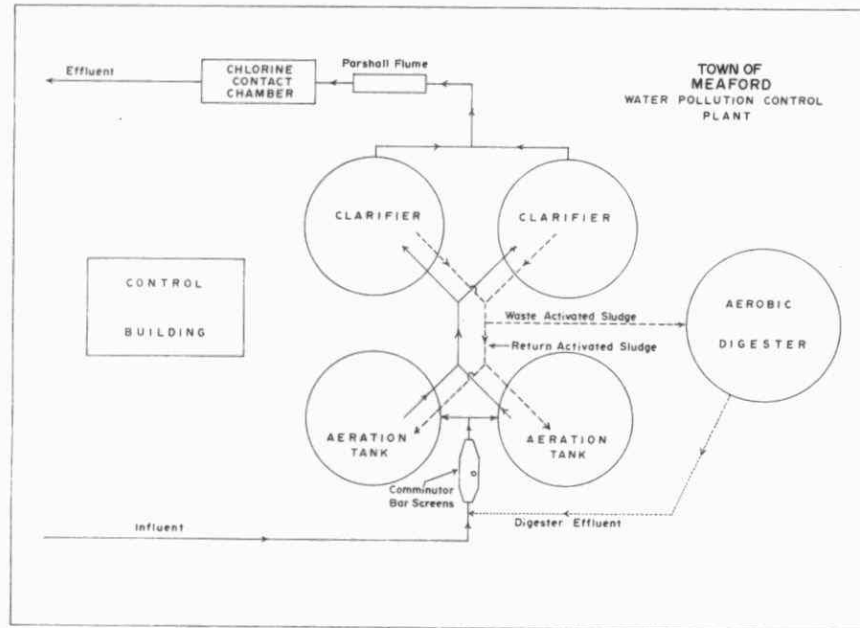
2 clarifiers 40'0" dia x 10'9" avg. swd
 Capacity: 168,000 I.G. total
 Detention: 4.7 hours
 Loading: Surface 340 gal/ft²/day
 Return Sludge Pumps: 2, 720 IGPM
 @ 30' tdb

CHLORINE CONTACT CHAMBER

Size: 24' x 8' x 6", 8400 gallons
 Detention Time: 14 min.

AEROBIC DIGESTER

Dimensions: 50'0" dia x 18'6" avg swd
 Capacity: 227,000 I.G.
 Aerator: Ames-Crosta mechanical

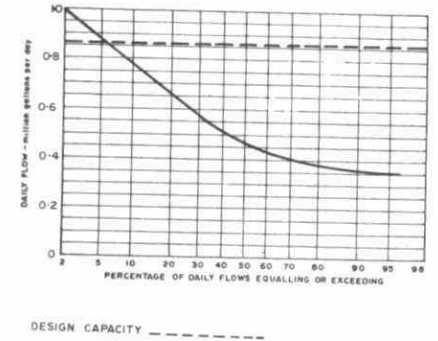
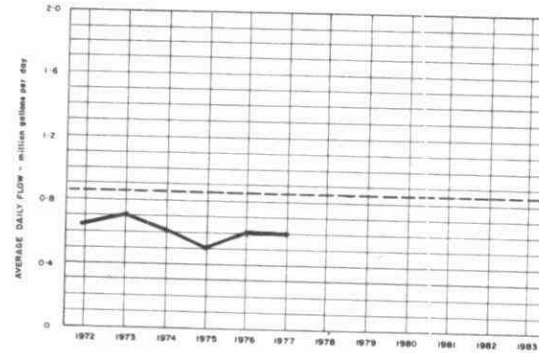


PLANT PERFORMANCE SEWAGE

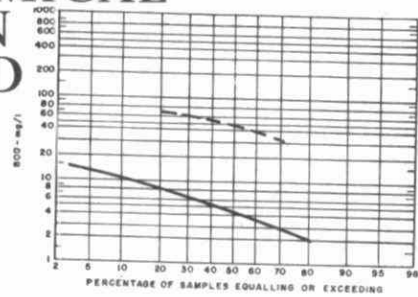
MEAFORD WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	ml. gal.	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	14.0	.45	.58	105	6	94	14	128	6	95	17	5.4	2.6
FEB	15.4	.54	.85	80	9	89	11	147	10	93	21	4.8	2.7
MAR	32.4	1.04	2.16	51	19	63	10	76	17	78	19	2.6	1.1
APR	18.4	.61	1.07	45	13	71	6	89	9	90	15	3.4	1.6
MAY	15.0	.47	.57	64	5	92	9	115	5	96	16	5.0	2.6
JUNE	13.3	.44	.55	90	3	97	12	150	12	92	18	5.8	2.7
JULY	14.3	.46	.78	85	3	96	12	175	4	98	24	5.2	2.5
AUG	16.0	.51	.95	52	3	94	8	116	6	94	18	3.7	2.0
SEPT	18.9	.59	1.04	80	3	96	14	58	3	94	10	4.1	2.0
OCT	21.1	.67	1.44	81	3	96	16	85	2	97	17	4.4	1.6
NOV	23.0	.76	1.29	48	3	93	10	78	3	96	17	3.4	1.5
DEC	20.6	.66	1.15	76	8	89	14	103	5	95	20	4.5	1.7
TOTAL	222.4	-	-	-	-	-	140	-	-	-	229	-	-
AVG.		.60	MAXIMUM 2.16	69	6	91	11	109	6	94	19	4.3	2.0
No. of Samples	-	-	-	25	26	-	-	72	62	-	-	26	25

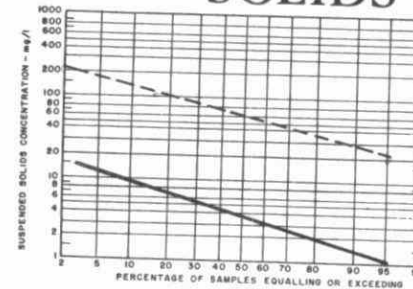
PROCESS DATA FLOWS



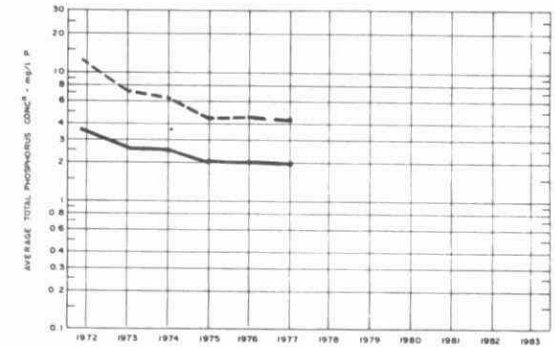
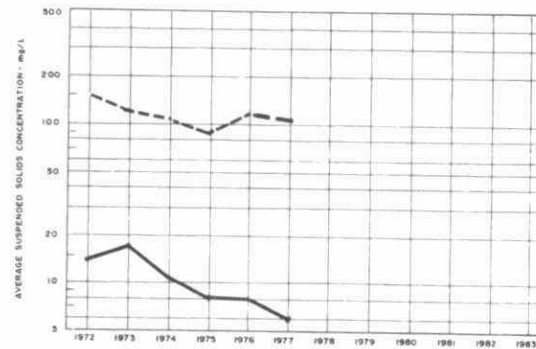
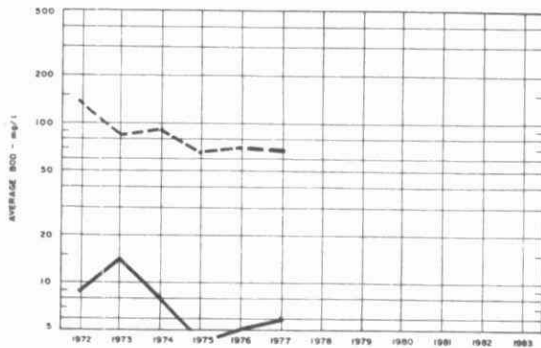
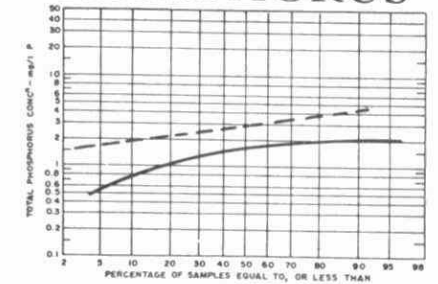
BIOCHEMICAL OXYGEN DEMAND



SUSPENDED SOLIDS



PHOSPHORUS



TREATMENT DATA

MONTH	GRIT		CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	Cl ₂ USED	AVG DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED	
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ lb BOD	10 ³ gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards	
JAN				3500	.05			.6	68	32	1.9	53	190	
FEB				3300	.05			.7	54	13	2.2	54	76	
MAR				2200	.10			.6	58	36	2.0	51	211	
APR				2200	.05			.4	67	27	2.3	43	162	
MAY		95	.6	1800	.07			.3	76		1.8	48		
JUNE		382	2.8	1800	.09			.3	71	216	.3	57	1280	
JULY		338	2.4	2800	.07			.5	59		.7	48		
AUG		455	2.8	2900	.04			.6	57	12	1.0	47	72	
SEPT		476	2.7	3200	.06			.5	55	8	1.1	45	48	
OCT		352	1.7	3300	.07			.5	59	40	1.1	45	237	
NOV				2700	.06			.5	64	34	.7	48	201	
DEC				3600	.06			.4	68		1.0	56		
TOTAL		2098	-	-	-	-	-	-	-	418	-	-	2477	
AVG.	ca. ft ³ /mi gal		3.0	2800	.06			.4	63		1.3	49		

REGION 2
West Central

DESIGN DATA

Project: City of Cambridge
(Hespeler) WPCP

Project No: 1-0033-66
Treatment: High Rate Activated Sludge
Design Flow: 2.05 MIGD
BOD: Raw Sewage - 4535 lb/day
SS: Raw Sewage - 4080 lb/day

PRETREATMENT

Raw Sewage Pumps:
One: Crane Deming Size: 400 USGPM
Three: Crane Deming Size: 300 USGPM

Comminutor:
Type: CORD 16B

Air Degritter:
Size: 11.75' x 14' x 8' swd
Volume: 8200 I. Gal. Retention: 5.8 min.
Mechanism: CHICAGO PUMP

BIOLOGICAL TREATMENT

Aeration Tanks:
Two, 150' x 7.25' x 13.5' (avg)
Volume: 183,000 I. Gal. Retention: 2.1 Hours

Clarifiers:
Two, 150' x 12.25' x 12.0' awl
Volume: 206,000 I. Gal.
Retention: 2.4 hours
Overflow rate: 545 gpd/sq.ft.

Aerobic Digesters - Stage 1:
Size: Two, 74.5' x 14.75' x 13.5' awl
Volume: 250,000 I. Gal.

Aerobic Digesters - Stage 2:
Size: Two, 74.5' x 14.75' x 13.5' awl
Volume: 250,000 I. Gal.

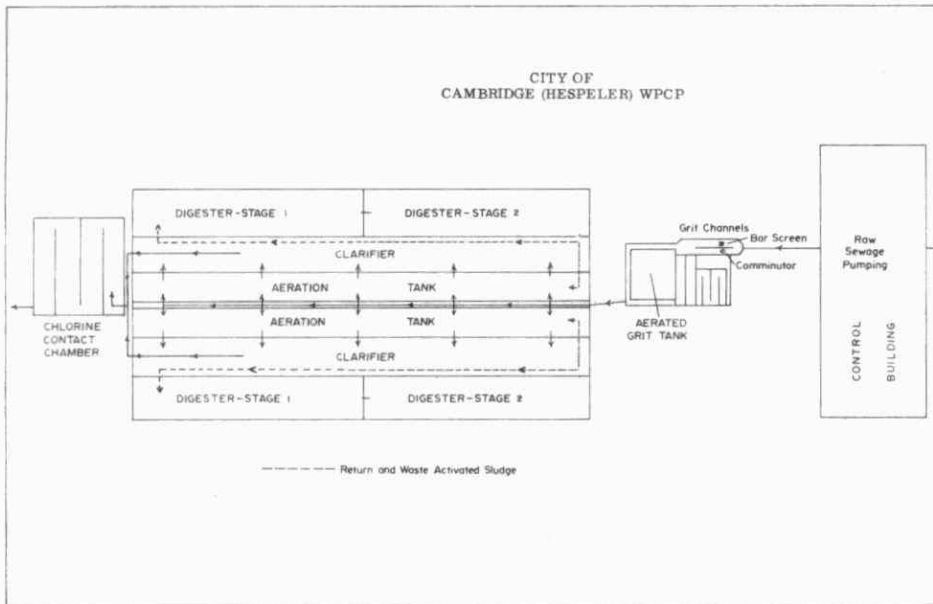
Blowers: Type: Three SUTORBILT 3100
Size: 3550 cfm. 150 HP Motors.

Sludge Pump: Type: MEYERS 40 MPD
Size: 7½ HP

CHLORINATION

Chlorine Contact Chamber:
30' x 28' x 9' (4-pass)
Volume: 47,000 I. Gal.
Retention: 33 min.

Chlorinator:
Type: W & T A811
Capacity: 500 lb/day

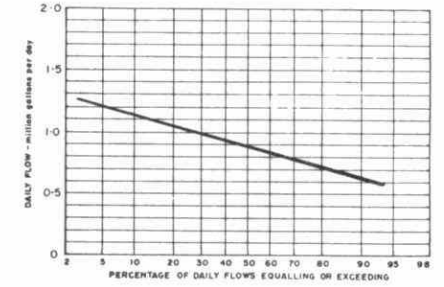
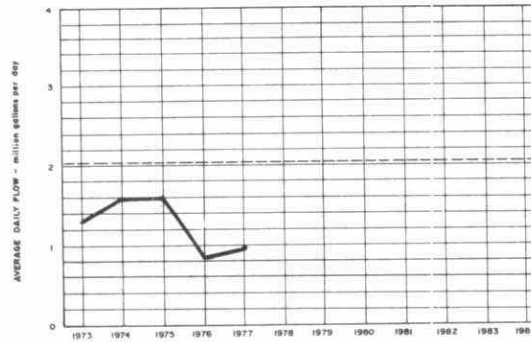


PLANT PERFORMANCE SEWAGE

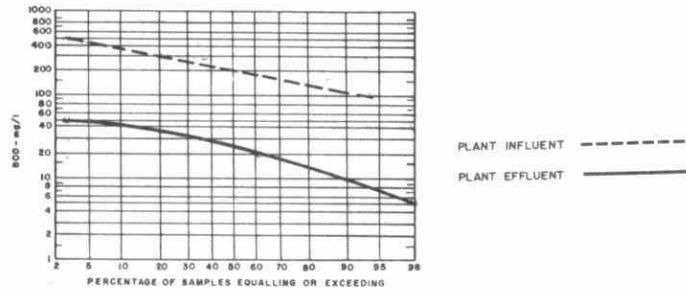
CAMBRIDGE (HESPELER) WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mi. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	22.5	.73	.82	252	29	88	50	161	35	78	28	5.4	.8
FEB	23.7	.85	1.14	304	26	91	66	170	35	79	31	5.4	2.0
MAR	33.8	1.09	1.59	104	39	63	22	162	39	78	43	4.9	.7
APR	30.0	1.00	1.36	185	21	89	49	142	27	81	34	6.1	.6
MAY	27.1	.87	1.17	329	15	95	85	484	26	95	124	5.7	.7
JUNE	25.2	.84	1.04	291	24	92	67	169	92	46	19	4.0	.7
JULY	24.0	.77	3.90	152	24	84	31	147	22	85	30	4.2	.7
AUG	26.1	.84	1.25	153	35	77	32	220	18	92	53	4.0	.7
SEPT	26.7	.89	1.41	261	29	89	62	168	12	93	42	6.6	.9
OCT	29.4	.95	1.40	148	19	87	38	173	15	91	46	5.0	.5
NOV	27.2	.91	1.19	162	24	85	38	159	20	88	38	3.6	.9
DEC	33.7	1.09	1.42	151	11	93	47	149	32	79	39	4.5	1.0
TOTAL	329.4	-	-	-	-	-	606	-	-	-	520	-	-
AVG.	27.4	.90	3.90	210	26	87	5.1	191	33	83	43	4.7	.8
No. of Samples	-	-	-	68	94	-	-	65	92	-	-	42	67

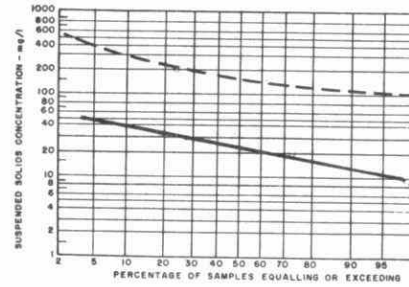
PROCESS DATA FLOWS



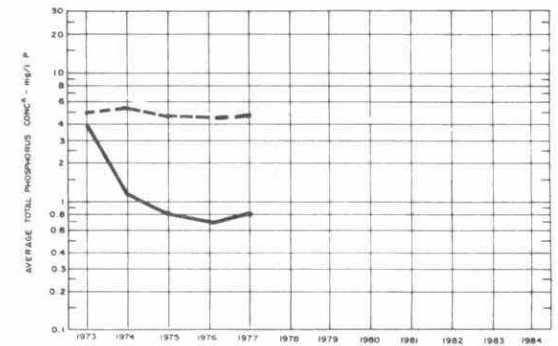
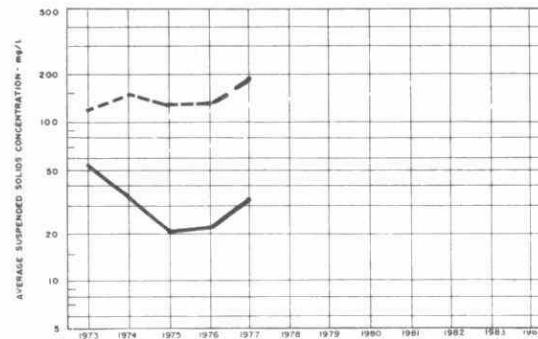
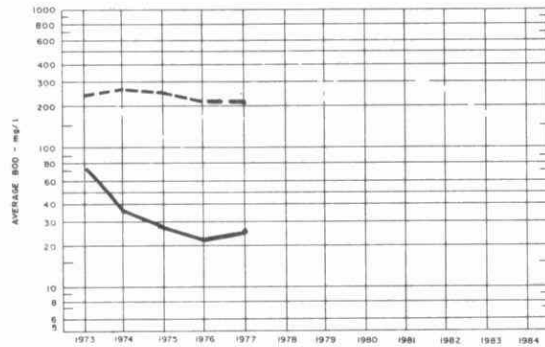
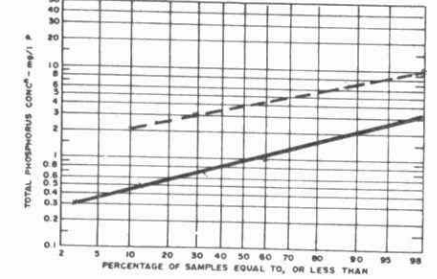
BOD₅



Susp. Solids



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb 800	QUANTITY 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN	26	760	3.3	2300	.7		127	8000			21000	67	
FEB	14	685	3.0	2200	1.1		119	8000					
MAR	49	730	2.2	2700	.2		151	9000		215	26000		1274
APR	31	890	3.0	2300	.4		122	8000		158	24000		936
MAY	26	840	3.1	2400	.7			8000		239			1416
JUNE	20	630	2.5	2000	.7		90	6000		117			696
JULY	22	805	3.3	2600	.3		69	6000					
AUG	28	920	3.4	1800	.4		87	5000		234			1392
SEPT	36	980	3.7	2200	.6		139	7000		182			1080
OCT	18	985	3.4	2000	.4		126	7000		344			2040
NOV	24	780	2.9	2600	.3		123	7000					
DEC	14	840	2.5	2300	.4		99	6000		298			1771
TOTAL	308	9845	-	-	-	-	1252	-	-	1787	-	-	10605
AVG.	0.9 cu ft/ml gal	820	3.2	2300	.5		104	7100		149	24000	67	884

DESIGN DATA

Project:	Town of Palmerston WPCP
Project No.:	1-0216-6 ¹
Treatment:	High Rate Activated Sludge
Design Flow:	0.34 MIGD (estimated)
BOD:	Raw sewage 76 mg/l (estimated)
SS:	Raw sewage 60 mg/l (estimated)

PRETREATMENT

RAW SEWAGE PUMPING:
1, centrifugal pump

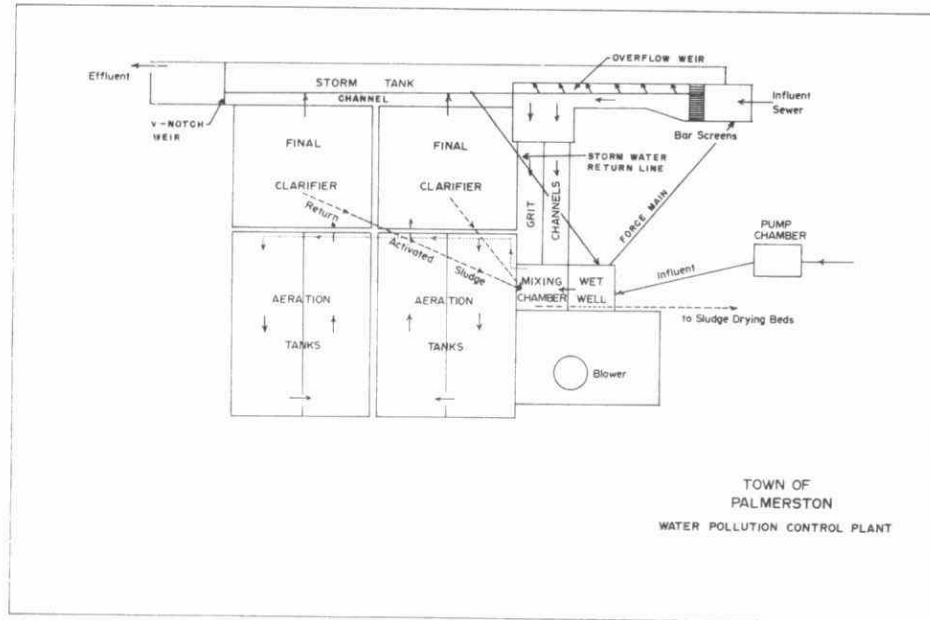
GRIT REMOVAL:
Two grit channels, each 16' x 2' x 4.1'
Volume (each) 820 l. Gal Detention (each) 3.5 min.

SCREENING:
Bar screens at influent sewer

BIOLOGICAL TREATMENT:

AERATION TANKS:
Four, each 28' x 7.6' x 8.3'
Volume (total) 44,200 l. Gal.
Detention: 3.2 hours
Blower 1, size 340 cfm at 8 psi

FINAL CLARIFIERS:
Two, each 15.6' x 15.6' Hopper Bottom
Volume (total) 28,000 l. Gal.
Detention: 2.0 hours
Overflow rate: 700 gal/ft²/day

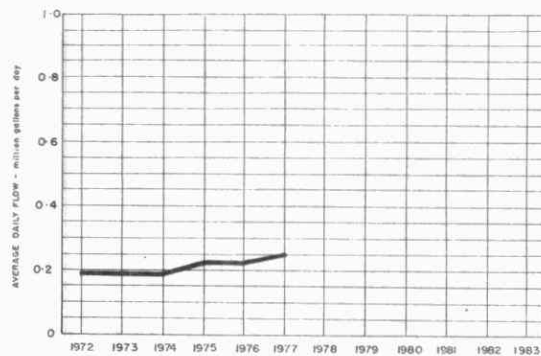


PLANT PERFORMANCE

PALMERSTON WPCP

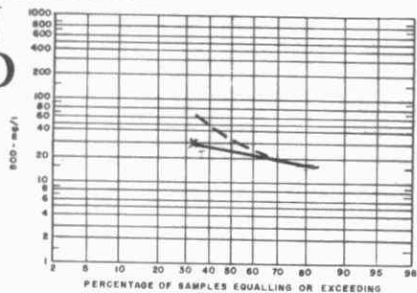
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN													
FEB													
MAR													
APR													
MAY				80	18	78		69	22	68		5.8	4.8
JUNE													
JULY				34	36	0		73	45	38		2.9	6.0
AUG				90	30	67		122	23	81		5.0	4.0
SEPT				160	60	63		655	55	92		10.0	8.1
OCT													
NOV				20	16	20		25	3	88		1.7	1.2
DEC				15	15	0		12	17	0		1.2	.9
TOTAL	* 90.0	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	7.5	.25	MAXIMUM	67	29	57	2.9	159	28	82	9.8	4.4	4.2
No. of Samples	-	-	-	6	6	-	-	6	6	-	-	6	6

FLOWS



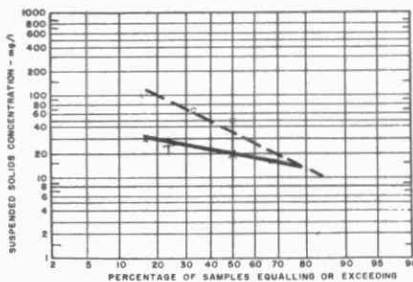
BIOCHEMICAL OXYGEN DEMAND

* All Flows are est.

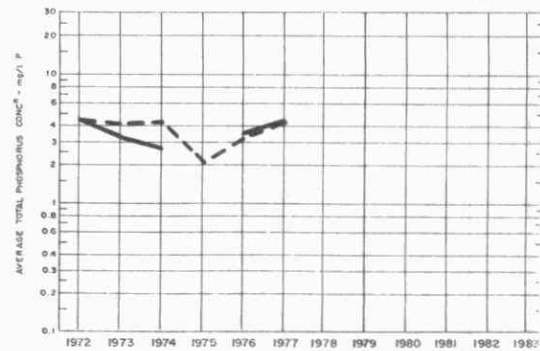
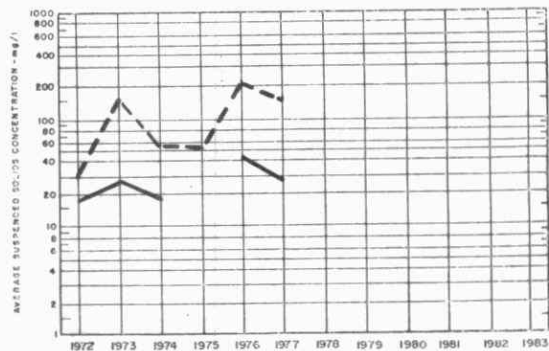
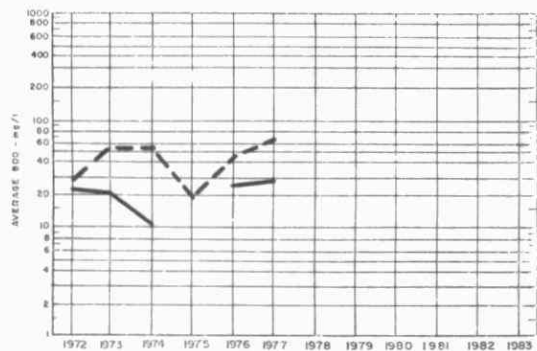
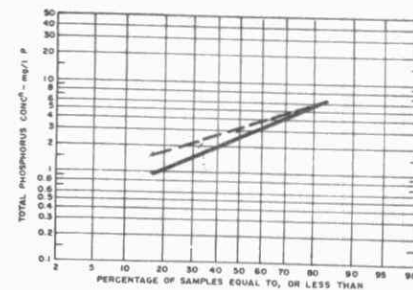


PLANT INFLUENT - - - - -
PLANT EFFLUENT —————

SUSPENDED SOLIDS



PHOSPHORUS



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER				
	QUANTITY REMOVED cubic feet	Cl ₂ USED 10 ³ pounds	AVG DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ lb 800	QUANTITY 3 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards	
JAN		NO CHLORINATION SYSTEM					12.0	3000	85				71.4	
FEB														
MAR														
APR							6.0			NO SLUDGE TANKS			35.7	
MAY				1300	.28		20.0	3000					119.0	
JUNE							30.0						184.0	
JULY				2200	.06		19.0	4600					113.0	
AUG				4600	.12		9.0	5900					53.6	
SEPT							2.0						11.9	
OCT							5.0						29.8	
NOV				1200	.10									
DEC				2200	.04			9000						
TOTAL			-	-	-	-	103.0	-	-					618.4
AVG	cu. ft/ml gal			2300	.12		12.9	5100	85					77.3



REGION 3
Central

DESIGN DATA

Project:	Bradford (town) WPCP
Project No:	1-0035-66
Treatment:	High Rate Activated Sludge
Design Flow:	0.86 MGD
BOD:	Raw Sewage - 230 mg/l
SS:	Raw Sewage - 275 mg/l

PRETREATMENT

COMMINUTION CHAMBER:

Two channels 1.9'w x 6.5' x 1.5' (avg)
with comminutors

BAR SCREEN:

In channel between comminutors

AIR DEGRITTER:

9.75' x 13' x 9.6' (avg)
Volume: 7,600 l. gal.
Detention: 13 min.

BIOLOGICAL TREATMENT

AERATION TANKS:

Two, 17.5' x 62' x 12.75' swd
Volume: 173,000 l. Gal.
Detention: 4.8 hours

SETTLING TANKS:

Two, 14' x 62' x 12.75' (avg)
Volume: 106,000 l. Gal.
Detention: 3.0 hour
Overflow rate: 495 gpd/sq. ft.

AEROBIC DIGESTERS:

Two, 50' x 32' x 17.5'
Volume: 350,000 l. Gal.

DIGESTER SETTLING TANKS:

Two, 9' x 32' x 9.1'
Volume: 25,000 l. Gal.

BLOWERS:

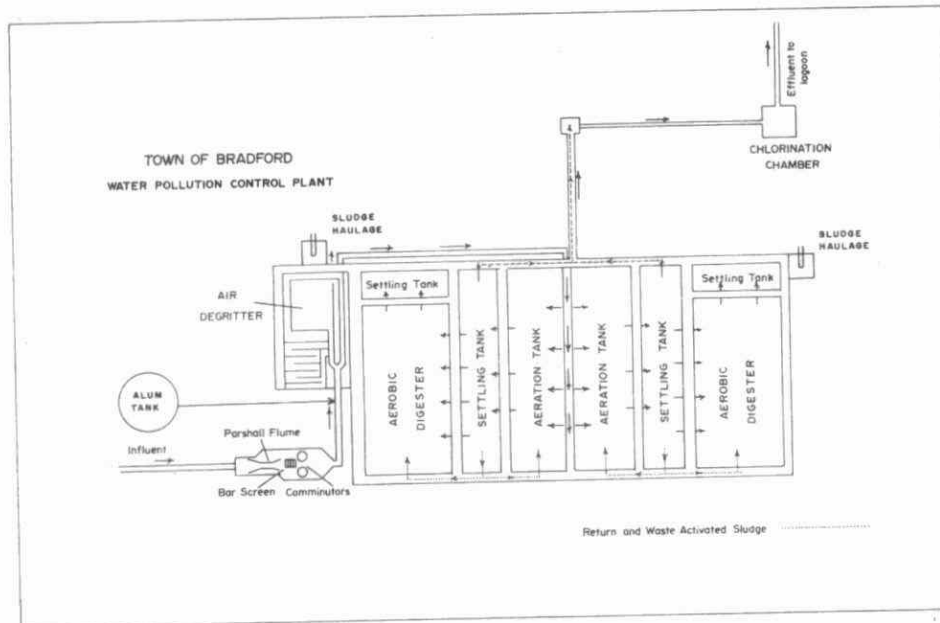
Three, Type: Roots Connersville
Size: 2650 cfm at 8.5 psi

CHLORINATION:

in manhole

LAGOON

10 acres

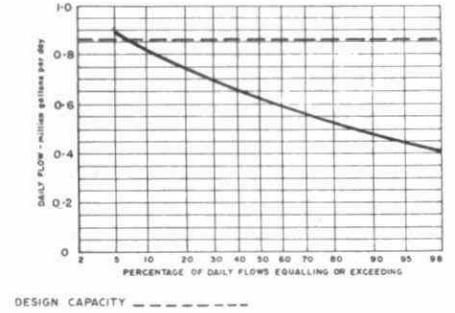
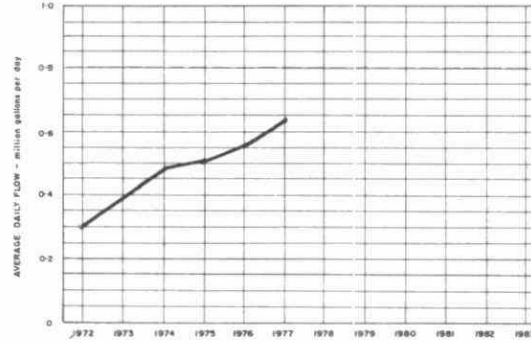


PLANT PERFORMANCE SEWAGE

BRADFORD WPCP

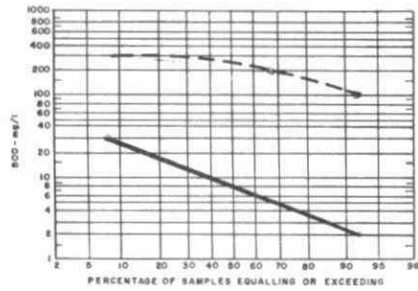
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	14.1	.45	.69	240	9	96	33	366	5	99	51	11.0	0.4
FEB	14.8	.53	.77	270	10	96	39	716	8	99	105	13.0	0.7
MAR	22.6	.73	.96	200	16	92	42	396	24	94	83	10.0	0.5
APR	19.9	.66	.91	220	16	93	41	358	35	90	64	9.2	0.8
MAY	17.3	.56	.77	180	34	81	25	322	54	83	46	15.0	1.5
JUNE	16.7	.56	.85	320	8	98	52	273	18	93	43	16.0	2.1
JULY	18.2	.59	.78	170	10	94	29	342	10	97	60	10.0	2.4
AUG	24.2	.78	1.59	110	2	98	26	308	10	97	72	5.1	1.7
SEPT	24.0	.80	1.11	260	3	99	62	366	6	98	86	10.0	0.7
OCT	20.9	.68	1.02	160	3	98	33	417	5	99	86	8.4	0.6
NOV	17.7	.59	.72	240	4	98	42	394	5	99	69	13.0	0.8
DEC	20.7	.67	.84	200	3	99	41	328	5	98	67	7.7	0.9
TOTAL	231.1	-	-	-	-	-	471	-	-	-	831	-	-
AVG.	19.2	.63	1.59	214	10	95	39	375	15	96	69	10.7	1.1
No. of Samples	-	-	-	12	12	-	-	326	12	-	-	12	12

FLOWS

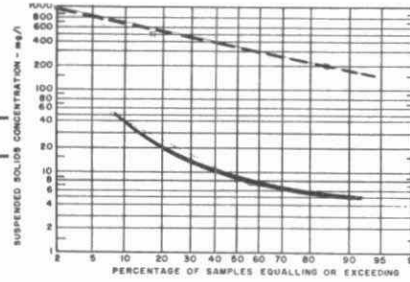


Susp. Solids

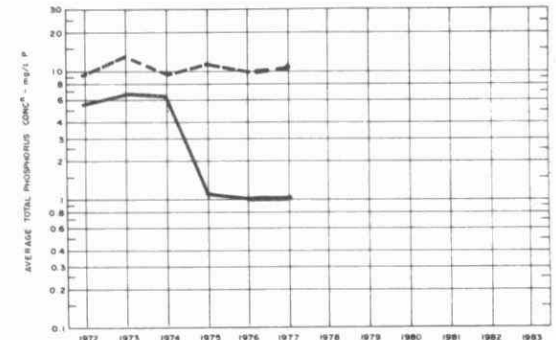
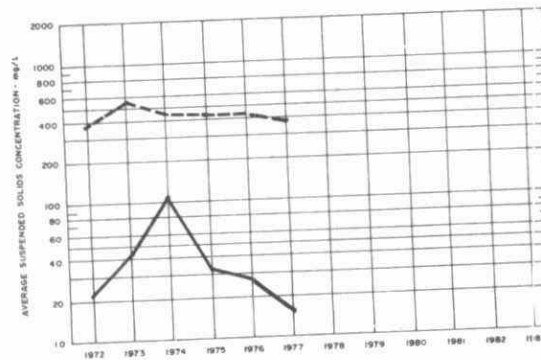
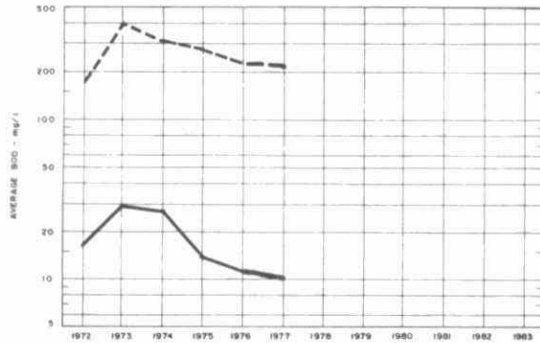
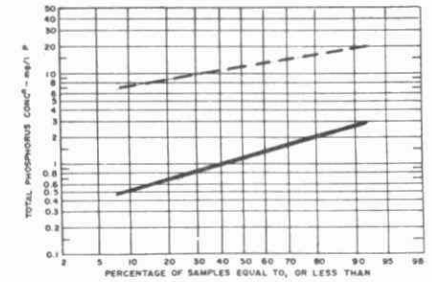
BOD₅



PLANT INFLUENT
PLANT EFFLUENT



Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED	Cl ₂ USED	AVG. DOSAGE	MLSS CONC	F/M	AIR USED	QUANTITY	SUSPENDED SOLIDS	VOL SOLIDS	QUANTITY REMOVED	SUSPENDED SOLIDS	VOL SOLIDS	AMOUNT HAULED
	cubic feet	pounds	mg/l	mg/l	day ⁻¹	1000 ft ³ lb BOO	10 gallons	mg/l	%	10 ³ gallons	mg/l	%	cubic yards
JAN	10			5800	.11	3.9		9000		121	18000	64	720
FEB				5800	.14	2.8				79	15000	63	470
MAR	57			5500	.15	3.1		13000		64	17000	72	378
APR	27			6100	.13	2.8		13000		112	19000	59	666
MAY	15	608	5.5	4600	.14	4.1		9000		139	15000	57	828
JUNE	24	814	4.9	3200	.35	3.8		7000		24	17000	55	144
JULY	32	895	4.9	3300	.18	4.2		10000		30	23000	52	180
AUG	43	835	3.4	4700	.11	5.9		56000		96	29000	46	570
SEPT	40	961	4.0	5800	.21	1.9		20000		137	30000	42	815
OCT	49	1028	4.9	5000	.13	3.4		10000		77	16000	49	457
NOV	59	461	5.6	5000	.16	2.7		13000		71	26000	51	424
DEC	52			5500	.14	3.2		12000		18	26000	56	104
TOTAL	408	5602	-	-	-	-		-	-	968	-	-	5756
AVG.	1.7 cu. ft/m ³ gal	934	4.5	5000	.16	3.5		16000		81	21000	56	480

REGION 4
Southeastern

DESIGN DATA

PROJECT NO: 1-0009-66
 TREATMENT: High Rate Activated Sludge
 DESIGN FLOW: 1.2 MGD
 DESIGN BOD: 108 mg/l
 DESIGN SS: 126 mg/l

SEWAGE LIFT PUMPS

Type: Chicago Pump
 Cap. Three 1050 IGPM @ 23' TDH

PRETREATMENT

1. Coarse Bar Screen, 2" c-c
2. Barminutor, CP model 15C-12 and bypass screen 1" c-c
3. Grit Removal - C. P. Aer-Degritter
 - Size 10' x 13' x 7' avg (5700 gal)

AERATION SECTION

- Tank Size: two 76' x 10'-9" x 9'-1" (90,000 gal. total)
- Detention: 1.8 hr @ 1.2 mgd
- Air Supply: Three SUTORBLT 1240 cfm
- Diffusers: C. P. FLEXOFUSERS

SETTLING TANKS

- Size: Six 25' x 16' hopper bottom tanks in two sets of three (total volume: 125,000 gal)
 Detention: 2.5 hr @ 1.2 mgd
 Loading: 500 gpd/sq. ft.

CHLORINATION

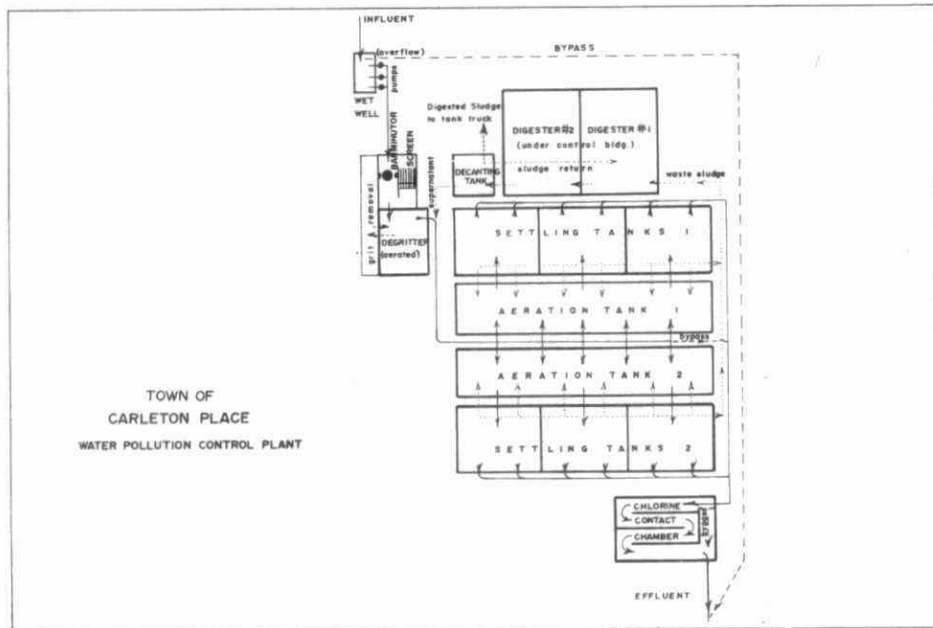
- Tank Size: 26' x 20' x 6' (20,000 gal)
 Detention: 24 minutes @ 1.2 mgd.
 Chlorinator: W & T V-800 200 lb/day, flow prop.

AEROBIC DIGESTER

- Size: Two 28' x 33'-6" x 12'-8" (160,000 gal total)

DECANTING TANK

- Size: 10' x 10' hopper bottom (4300 gal)

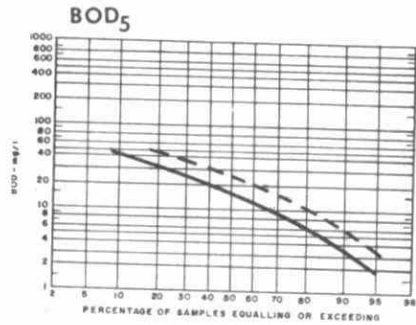
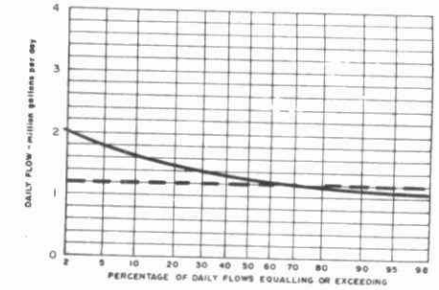
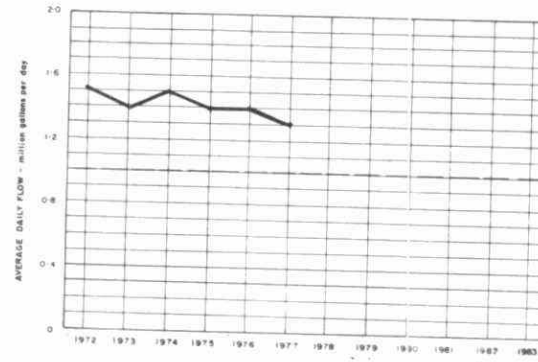


PLANT PERFORMANCE

CARLETON PLACE WPCP

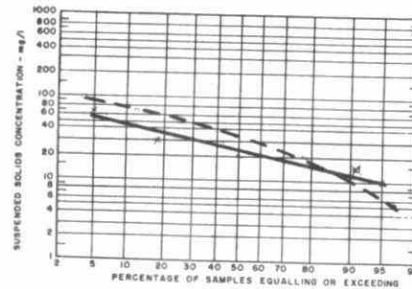
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	36	1.2	1.9	14	22	0	0	17	33	0	0	2.9	2.0
FEB	33	1.2	1.4	19	19	0	0	40	28	30	4.0	1.7	1.4
MAR	37	1.2	1.4	9	38	0	0	15	40	0	0	1.1	2.1
APR	36	1.2	1.7	23	16	30	2.5	28	23	18	1.8	1.8	1.9
MAY	37	1.2	1.2	25	35	0	0	28	30	0	0	3.0	1.3
JUNE	32	1.1	1.3	6	2	67	1.3	23	20	13	1.0	3.4	1.1
JULY	36	1.1	2.1	17	12	31	1.8	20	12	25	1.8	3.3	1.3
AUG	38	1.2	1.5	30	22	27	3.1	23	45	0	0	2.9	1.2
SEPT	38	1.3	1.7	22	6	73	6.1	63	15	76	18.4	1.9	2.7
OCT	44	1.6	2.2	48	22	54	11.5	43	33	23	4.4	2.8	2.3
NOV	44	1.5	2.0	9	40	0	0	15	70	0	0	2.8	1.0
DEC	46	1.5	2.1	9	41	0	0	15	55	0	0	2.2	1.1
TOTAL	457	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	38	1.3	2.2	19	24	0	0	28	34	0	0	2.9	1.4
No. of Samples	-	-	-	24	23	-	-	24	23	-	-	153	170

PROCESS DATA FLOWS

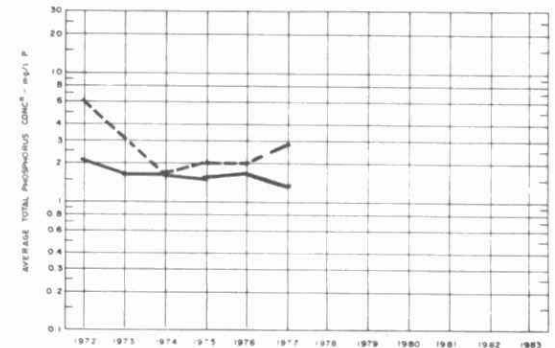
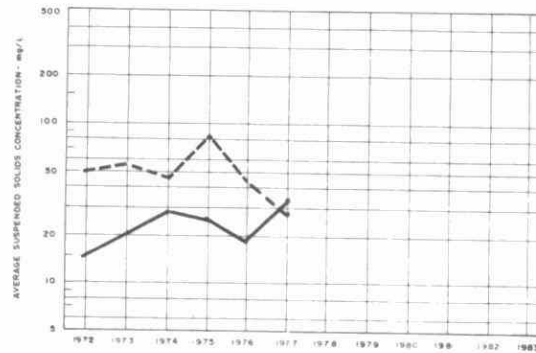
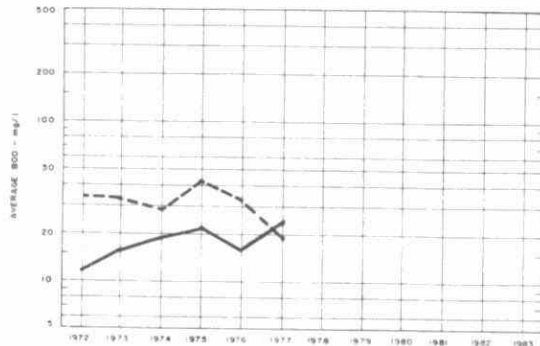
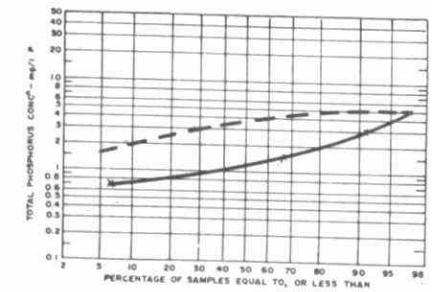


PLANT INFLUENT - - - - -
PLANT EFFLUENT —————

Susp. Solids



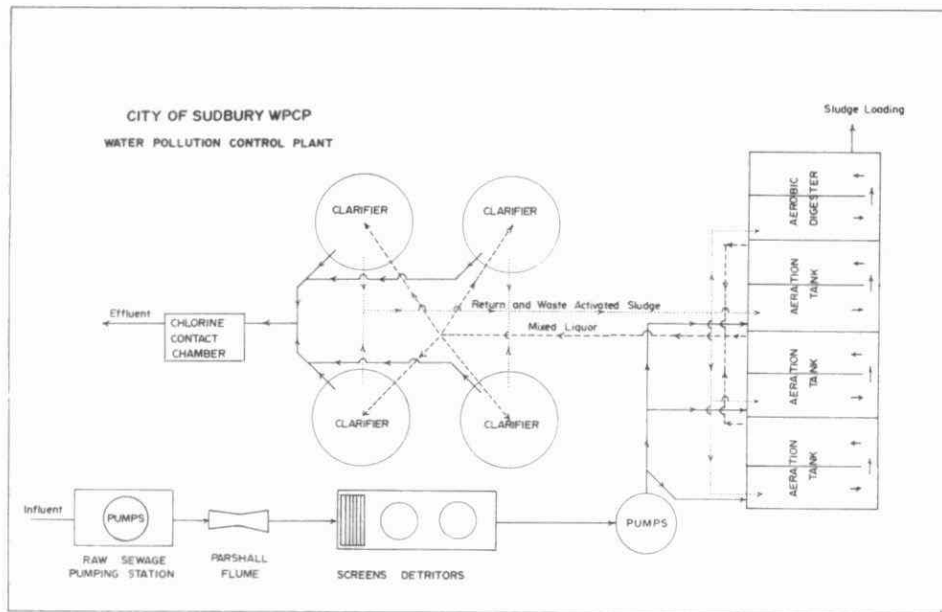
Phos.



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ / lb BOD	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	QUANTITY REMOVED 10 gallons	SUSPENDED SOLIDS mg/l	VOL SOLIDS %	AMOUNT HAULED cubic yards
JAN		692	1.9	2700	.06								
FEB		611	1.8	2100	.28	8.3							
MAR		668	1.8	3100	.12	3.2							
APR		719	2.0	2600	.11	6.0							
MAY		757	2.0	2900	.09								
JUNE		936	2.8	2900	.02	11.4							
JULY		698	2.0	3200	.04								
AUG		781	2.0	3200	.12	5.2							
SEPT		769	2.0	3300	.09	2.4							
OCT		796	1.8	2700	.27	1.4							
NOV		723	1.8	3200	.17	1.2							
DEC		743	1.5	3300	.14	2.0							
TOTAL		8893	-	-	-	-							
AVG.	cu. ft/mi gal	741	2.0	2900	.13	4.6							

REGION 5
Northeastern



DESIGN DATA

Project Sudbury WPCP

Project No: 2-1002-72

Design Flow: 11.25 MGD

Design BOD 95 mg/l

Design SS 139 mg/l

RAW SEWAGE PUMPS

(at pumping station)

Three CANADA PUMPS: Type: 14 DSV,

Capacity: (each) 9000 USGPM at 93' TDH

Two CANADA PUMPS: Type: 10RSLV,

Capacity: 4400 USGPM at 94.5 TDH

BAR SCREENS:

Two, LINK-BELT Mechanical Bar Screens

4' x 6' Bars on 2.5' centres

DETRITOR

30' dia. x 2.2' swd

Type: DORR-OLIVER LONG

RAW SEWAGE PUMPS

(at plant)

Three, WORTHINGTON

Capacity (each) 13,440 USGPM at 28' TDH

AERATION TANKS:

Three, 132.5' x 48' x 15' swd (2-pass)

Volume (total) 1,786,000 l. Gal.

Detention: 2.9 hours

Blowers: Four, SPENCER TURBO

Capacity each: 10,400 ft³/min. at 8.5 psi

FINAL CLARIFIERS

Four, 110' dia. x 12.5' swd

Mechanism: DORR-OLIVER LONG

Volume: (total) 3,000,000 l. Gal.

Detention: 4.7 hours

Surface overflow rate: 416 gal/ft²/day

RETURN SLUDGE PUMPS:

Three WORTHINGTON

Capacity (each): 6100 gpm at 51' TDH

One WORTHINGTON

Capacity: 840 gpm at 32' TDH

AEROBIC DIGESTER

One, 132.5' x 48' x 15' swd (two-pass)

Volume (total) 595,000 l. Gal.

CHLORINATORS:

One, FISHER AND PORTER

Type: 70-4500

Capacity: 8000 lb/day

One, FISHER AND PORTER

Type: 71-V1006

Capacity: 400 lb/day

CHLORINE CONTACT CHAMBER:

139' x 30' x 12.5'

Volume: 325,000 l. Gal.

LAGOONS

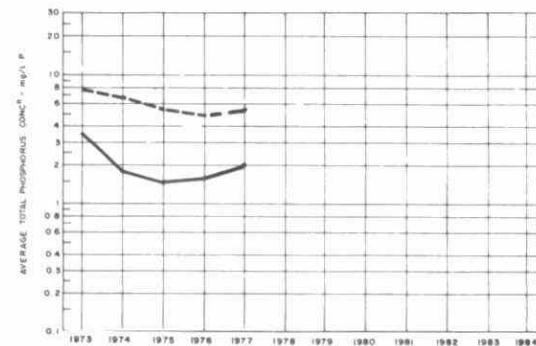
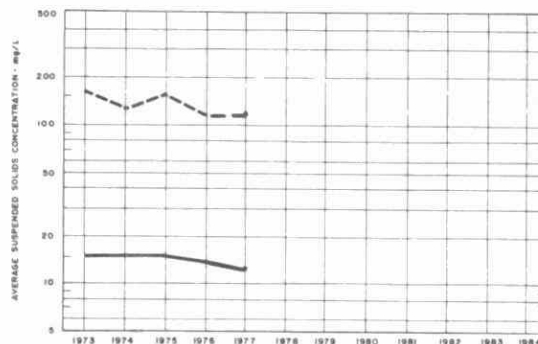
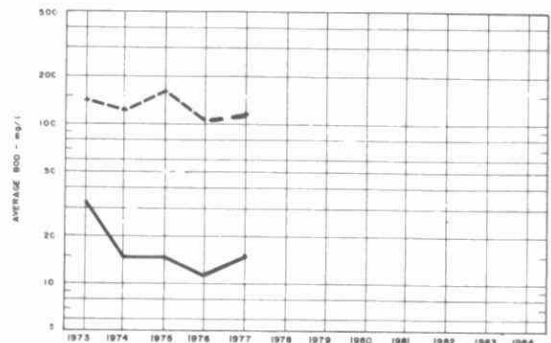
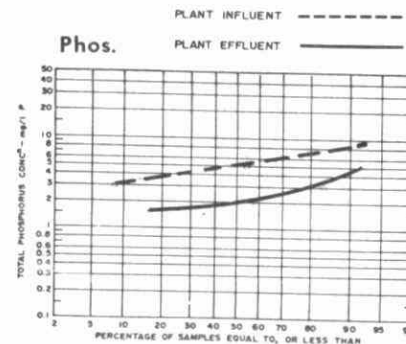
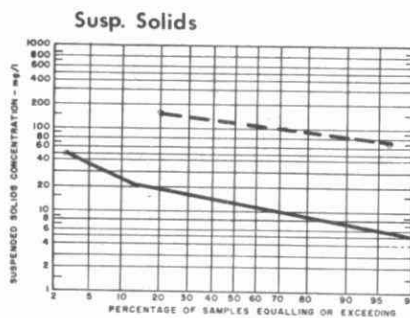
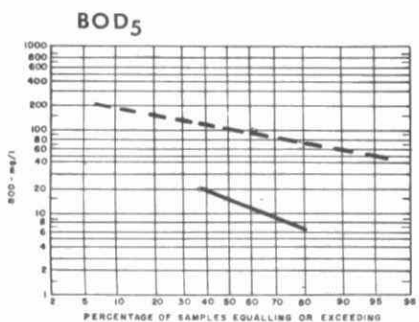
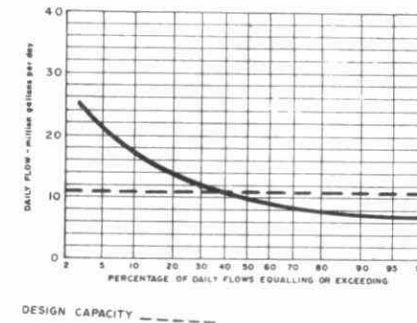
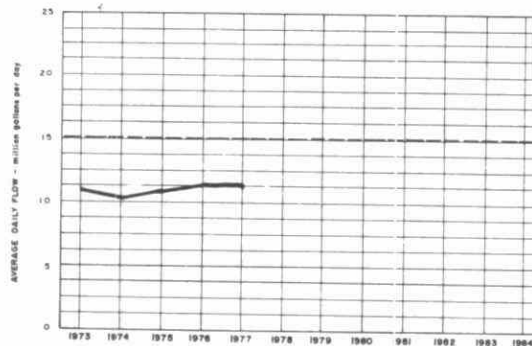
One, Area: 1 acre

PLANT PERFORMANCE

SUDBURY WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mil gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN	314	10	16	115	19	83	302	124	13	90	349	4.6	1.6
FEB	282	10	19	132	20	85	315	129	11	91	332	6.0	2.4
MAR	590	19	31	57	16	72	242	88	18	80	412	2.5	
APR	537	18	30	101	16	84	456	114	24	79	483	4.4	1.9
MAY	325	11	19	151	10	93	459	157	14	91	465	6.2	1.4
JUNE	238	8	10	160	18	89	338	134	13	90	288	5.3	3.6
JULY	266	9	13	100	7	93	247	109	12	89	271	10.9	1.4
AUG	266	9	13	85	6	93	210	126	11	91	306	4.7	1.8
SEPT	314	11	19	110	15	86	299	109	12	89	305	4.0	1.7
OCT	343	11	16	126	9	93	401	124	13	90	380	7.2	2.1
NOV	332	11	17	155	18	88	454	115	11	90	345	5.4	2.0
DEC	292	9	17	165	20	88	423	113	13	88	292	4.1	1.7
TOTAL	4099	-	-	-	-	-	4344	-	-	-	4385	-	-
AVG		11	MAXIMUM 31	121	15	88	362	120	13	89	366	5.4	2.0
No. of Samples	-	-	-	28	30	-	-	79	126	-	-	12	11

PROCESS DATA FLOWS



TREATMENT DATA

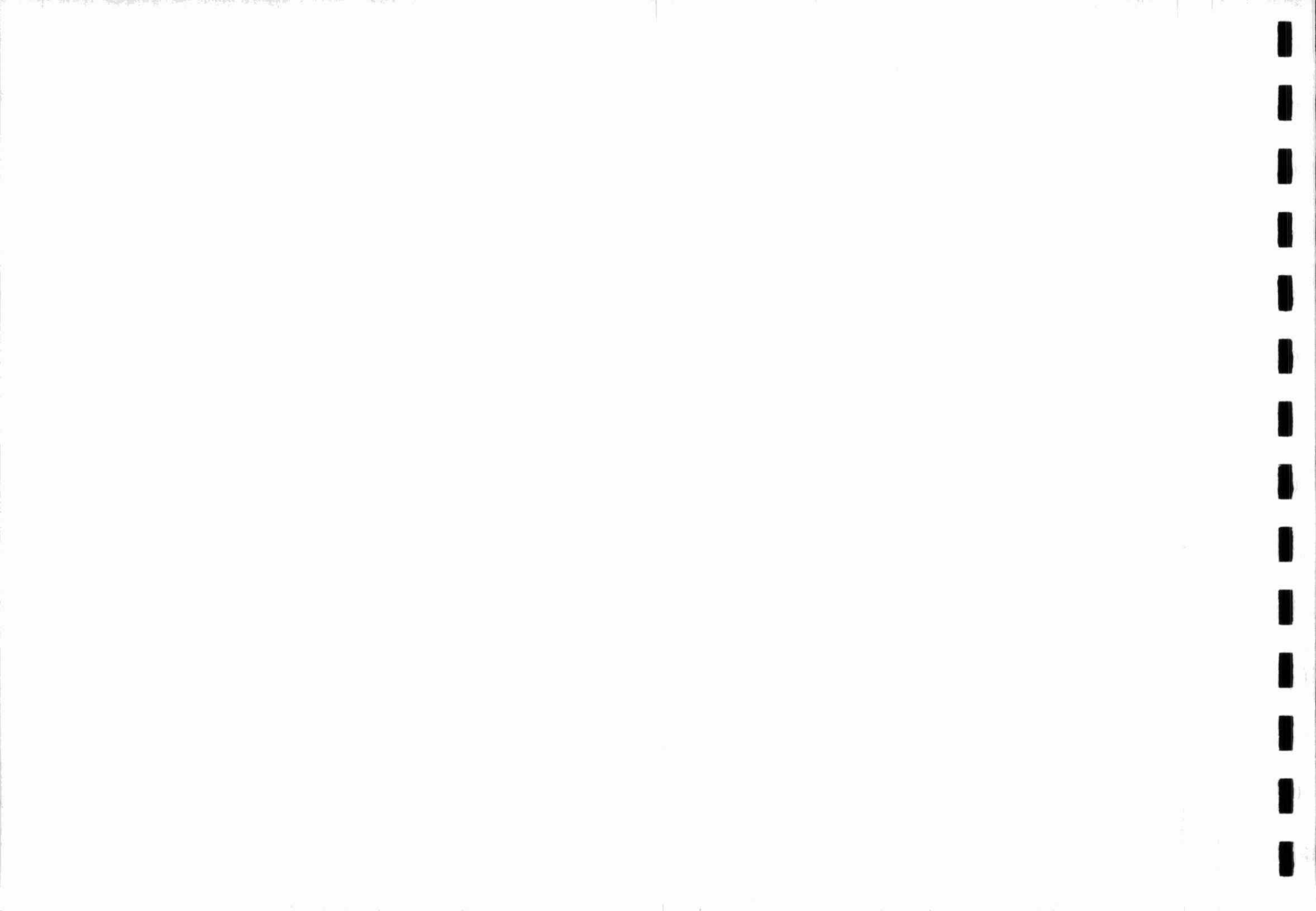
MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED 10 ³ cubic feet	Cl ₂ USED 10 ³ pounds	AVG. DOSAGE mg/L	MLSS CONC mg/L	F/M day ⁻¹	AIR USED 1000 ft ³ lb 800	QUANTITY 5 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	QUANTITY REMOVED 10 ³ gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	AMOUNT HAULLED cubic yards
JAN	1.8			5700	.11	2.0		13000	79	354	10000	79	2103
FEB	1.7			6000	.13	1.6	200	12000	80	222	9000	74	1321
MAR	1.6			5800	.08	2.5	200	12000	75	307	12000	79	1823
APR	1.4			5400	.16	0.9	335	12000	75	144	11000	75	854
MAY	1.9	2.8	1.7	6100	.15	1.2		13000	76	247	12000	72	1468
JUNE	1.6	7.7	3.2	6300	.11	2.0	704	12000	72	413	15000	71	2453
JULY	1.9	7.2	2.7	6400	.08	2.8	851	15000	70	364	14000	73	2158
AUG	1.6	7.4	2.8	7100	.06	3.3	352	14000	70	454	15000	71	2694
SEPT	1.2	6.2	2.0	6500	.10	2.3	160	15000	68	335	11000	64	1987
OCT	1.0	4.1	1.2	6400	.12	1.7	165	14000	69	304	14000	67	1802
NOV	1.0	2.5	1.9	5700	.17	1.3	456	12000	71	764	17000	65	4532
DEC	.8			5200	.17	1.2	330	13000	76	638	13000	72	3788
TOTAL	17.5	37.9	-	-	-	-	3753	-	-	4546	-	-	26983
AVG.	4.2 cu. ft/min gal	6.3	2.4	6100	.2	1.9	375	13000	73	379	13000	72	2249

TREATMENT DATA

MONTH	CENTRIFUGE OPERATION										
	TOTAL HOURS	WASTE VOLUME 10 ³ gallons	ACTNATED T.S. %	SLUDGE T.S. 10 ³ pounds	POLYMERS USED				CENTRATE S.S. mg/l	CAKE	
					72B pounds	78B pounds	444 K pounds			T.S. %	HAULLED cubic yards
JAN	301	1117	1.3	145	720		360		298	10.6	936
FEB	234	887	1.2	106	518		259		174	10.5	816
MAR	324	1197	1.2	144	694	752	133		214	10.7	984
APR	237	895	1.2	107	463	840	38		140	10.6	756
MAY	183	811	1.2	97	401	642	18		292	11.0	636
JUNE	265	1139	1.3	148	584		292		384	10.5	1008
JULY	265	1001	1.4	140	618	51	290		167	10.7	924
AUG	245	1038	1.4	145	534	933			403	10.7	912
SEPT	261	1073	1.5	161	523	864			393	11.7	1056
OCT	251	1099	1.4	154	491	854			405	11.4	984
NOV	234	1029	1.3	134	426	744			443	10.8	900
DEC	265	1163	1.2	140	530	942			464	10.4	1032
TOTAL	3065	12449		1621	6502	6622	1352		3777		10944
AVG	255	1037	1.3	135	542	736	225		315	10.8	912



TERTIARY TREATMENT



REGION 1
Southwestern

DESIGN DATA

PROJECT City of Stratford WPCP
 PROJECT NO. 2-0002-57
 TREATMENT Activated Sludge
 DESIGN FLOW 6.0 mgd
 DESIGN POPULATION 30,000
 BOD - Raw Sewage 140 mg/l
 - Removal 90%
 SS - Raw Sewage 250 mg/l
 - Removal 95%

PRIMARY TREATMENT

Comminution

Type: Barminutor
 Size: One Model B (36')

Grit Removal

Type: Dorr detritor
 Size: One 20' x 20' x 1' (2500 gal)
 Retention: 0.9 min

Primary Sedimentation

Type: Infilco
 Size: Four 80' dia x 10 1/2' swd (1.32 mil gal)
 NOTE: Two used for storm flows only
 Retention: 2.7 hr (2 cl)
 Loading: Surface, 600 gal/ft²/day
 Weir, 12,000 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Diffused air; triple-pass
 Size: Five 85 1/2' x 25' 8" (avg) x 13' (0.97 mil gal)
 Retention: 3.9 hr

Diffusers

Type: Activated Sludge Ltd.
 Alundum Domes

Air Supply

Type: Roots-Connersville
 Size: Three 1750 cfm

Secondary Sedimentation

Type: Infilco
 Size: Two 80' dia x 11' 3" swd (0.705 mil gal)
 Retention: 2.7 hr
 Loading: Surface, 600 gal/ft²/day
 Weir, 12,000 gal/ft/day

CHLORINATION

Chlorine Contact Chamber

Size: 67' x 27' x 8' (90,000 gal)
 Retention: 22 min

Chlorinator

One F & P 500 lb/day

OUTFALL

Avon River

SLUDGE HANDLING

Digestion System - Heated, two-stage

Type: Gas mixed
 Size: One 73' dia x 26' swd (100,000 gal)
 ft or 0.624 mil gal

Primary Stage (inner)

Size: 67,600 cu ft
 Loading: 2.8 lb/cu ft/mo

Secondary Stage (outer ring)

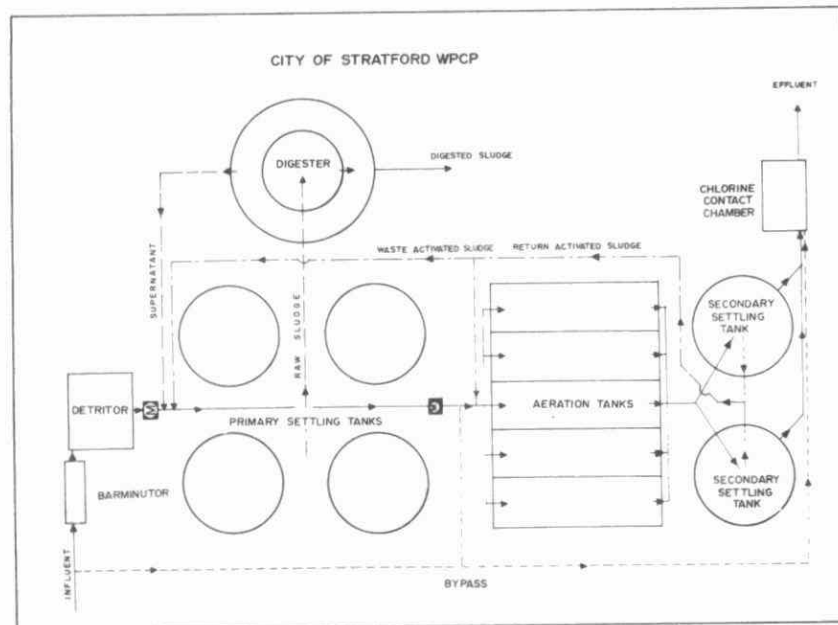
Size: 32,400 cu ft
 Total Loading: 1.9 lb/cu ft/mo

TERTIARY TREATMENT

Rate: 8 MGD (5 USGPM / ft²)
 Type: Four, variable declining rate anthracite and sand filters
 Size: (each) 13' x 26'

PHOSPHORUS REMOVAL

Tank: 6000 Gal. cap.

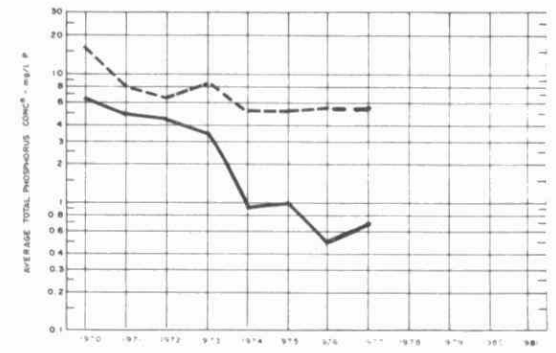
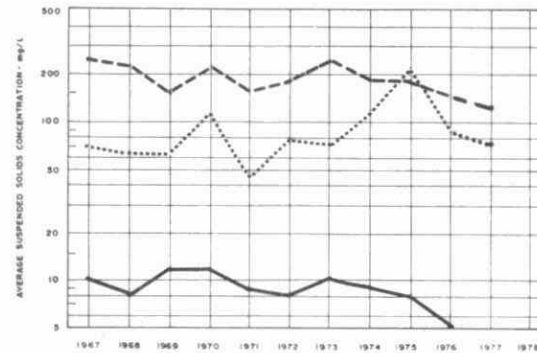
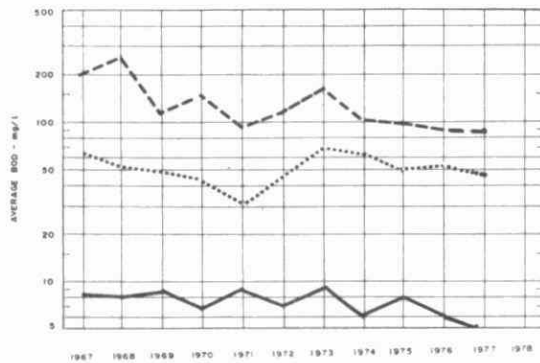
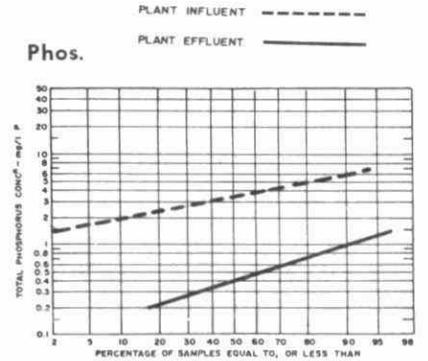
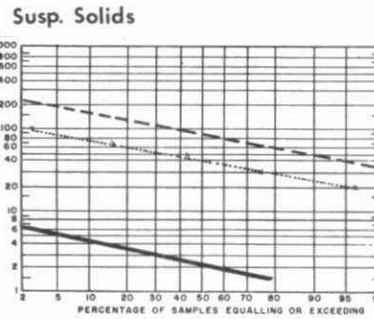
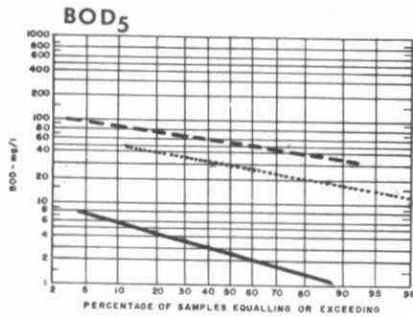
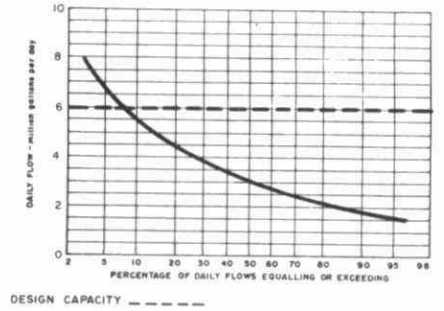
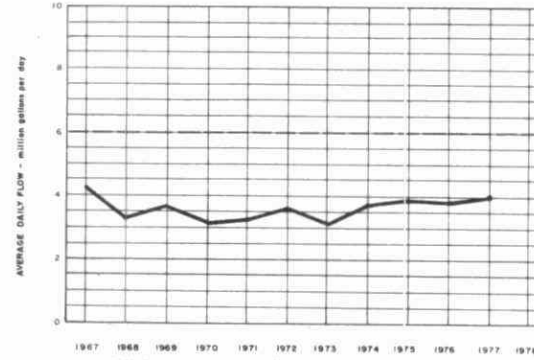


PLANT PERFORMANCE
SEWAGE

STRATFORD WPCP

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	m.l. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	94	2.8	3.3	97	4	96	88	181	4	98	167	5.8	.4
FEB	100	3.7	7.0	73	4	95	69	140	3	98	137	5.2	1.0
MAR	223	7.2	15.3	68	4	94	142	115	5	96	245	3.8	.6
APR	117	3.9	8.9	71	5	93	77	129	4	97	146	4.7	.9
MAY	78	2.5	3.4	136	6	96	102	166	2	99	128	8.0	1.2
JUNE	79	2.6	5.2	100	5	95	75	109	4	96	83	7.8	.8
JULY	85	2.7	4.4	100	4	96	82	143	2	98	120	6.6	.4
AUG	98	3.1	6.0	94	4	95	88	139	1	99	135	5.9	.3
SEPT	151	5.0	11.2	71	5	92	99	111	10	90	152	4.9	1.7
OCT	152	4.9	9.6	76	3	96	111	111	7	93	158	4.5	.2
NOV	137	4.5	8.5	87	3	96	114	101	2	98	135	3.7	.7
DEC	173	5.5	10.8	65	5	92	104	135	2	98	230	4.1	.8
TOTAL	1487	-	-	-	-	-	1263	-	-	-	1888	-	-
AVG.	-	4.0	15.3	89	4	95	105	130	3	97	157	5.4	.7
No. of Samples	-	-	-	118	116	-	-	120	114	-	-	95	92

PROCESS DATA
FLOWS

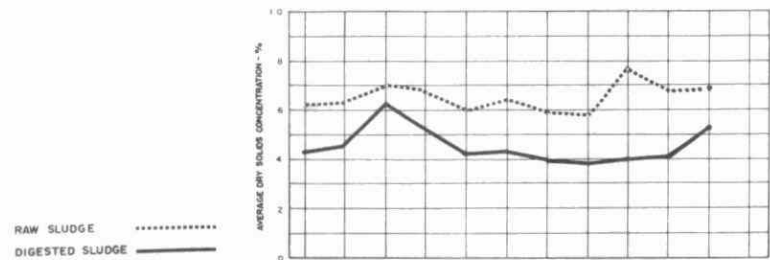
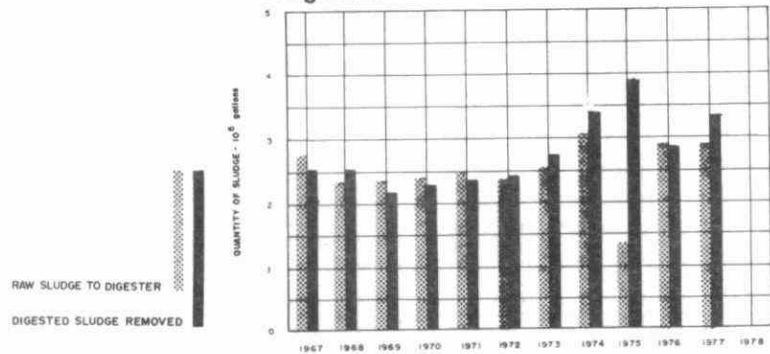


TREATMENT DATA

STRATFORD WPCP

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
	QUANTITY REMOVED cubic feet	CL ₂ USED	AVG. DOSE	BOD	SUSPENDED SOLIDS	MLSS CONC	F/M	AIR	RAW SLUDGE			DIGESTED SLUDGE			SUPER-NATANT	AMOUNT HAULIED cubic yards
		pounds	mg/l	mg/l	mg/l	mg/l	day ⁻¹	1000 HP 15000	QUANTITY 3 10 gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 3 10 gallons	TOTAL SOLIDS %	VOL SOLIDS %	T. S. %	
JAN	14	1978	2.1	66	99	2100	.09	2.4	160	6.3	68	139	5.5	52		826
FEB	51	2105	2.1	53	73	2000	.10	2.1	183	7.0	64	254	4.2	55		1507
MAR	323	3200	1.4	33	58	1600	.15	1.9	243	9.2	60	238	4.0	58		1411
APR	34	2555	2.1	35	67	1900	.08	3.6	215	7.0	62	255	4.4	55		1517
MAY	17	2785	3.5	52	68	1500	.09	3.8	265	6.8	69	384	3.8	54		2280
JUNE	51	1940	2.4	62	97	1900	.09	3.6	273	7.2	66	183	5.0	58		1086
JULY	33	2998	3.5	57	82	1900	.09	3.7	280	6.8	58	411	3.6	56		2441
AUG	95	2680	2.7	62	111	1700	.12	2.9	287	6.8	56	251	3.9	51		1485
SEPT	195	2800	1.9	41	74	1900	.11	3.0	272	6.9	56	324	6.1	51		1921
OCT	37	3010	2.0	40	55	1500	.13	3.6	279	6.4	58	409	4.4	51		2425
NOV	26	3265	2.4	41	49	1900	.10	3.3	253	6.8	64	168	5.7	50		995
DEC	27	3115	1.8	41	57	1600	.15	2.8	239	6.7	64	270	4.1	51		1601
TOTAL	903	32431	-	-	-	-	-	-	2949	-	-	3286	-	-	-	19495
AVG.	0.6 cu. ft./mi.gal		2.2	48	71	1800	.10	3.0		6.9	62		4.5	53		

Digestion



REGION 2
West Central

DESIGN DATA

PROJECT NO.	2-0208-66
TREATMENT	Activated Sludge
DESIGN FLOW	0.75 mgd
DESIGN POPULATION	7,500
BOD - Raw Sewage	200 mg/l
SS - Raw Sewage	250 mg/l

LIFT PUMPS

Type: Smart-Turner
 Size: Two 300 gpm @ 20' tdh
 One 500 gpm @ 25' tdh

PRIMARY TREATMENT

Grit Removal

Type: Channels, manually cleaned
 Size: Two 25' x 1' 10 3/4" wide
 Flow Velocity: 1 fps @ 0.366' depth

Primary Sedimentation

Type: Spiraflo (peripheral feed)
 Size: One 35' dia x 12' swd
 (72,000 gal)
 Retention: 2.31 hr
 Loading: Surface, 780 gal/ft²/day
 Weir, 7350 gal/ft/day

SECONDARY TREATMENT

Aeration Tanks

Type: Diffuse air; single-pass
 Size: Two 63 x 21 x 12'
 (198,000 gal)
 Retention: 6.33 hr
 Diffusers: Dorr Inka

Air Supply

Type: Powlesland-Bailey fan
 Size: Two 3200 scfm @ 30" wc

Secondary Sedimentation

Type: Dorr
 Size: One 45' dia x 9.17' swd
 (97,300 gal)
 Retention: 3.12 hrs
 Loading: Surface, 470 gal/ft²/day
 Weir, 5820 gal/ft/day

CHLORINATION

Type: W & T
 Size: One 75 lb/day

Chlorine Contact Chamber

Size: One 29.75 x 12 x 6.92'
 (15,400 gal)
 Retention: 29.6 min

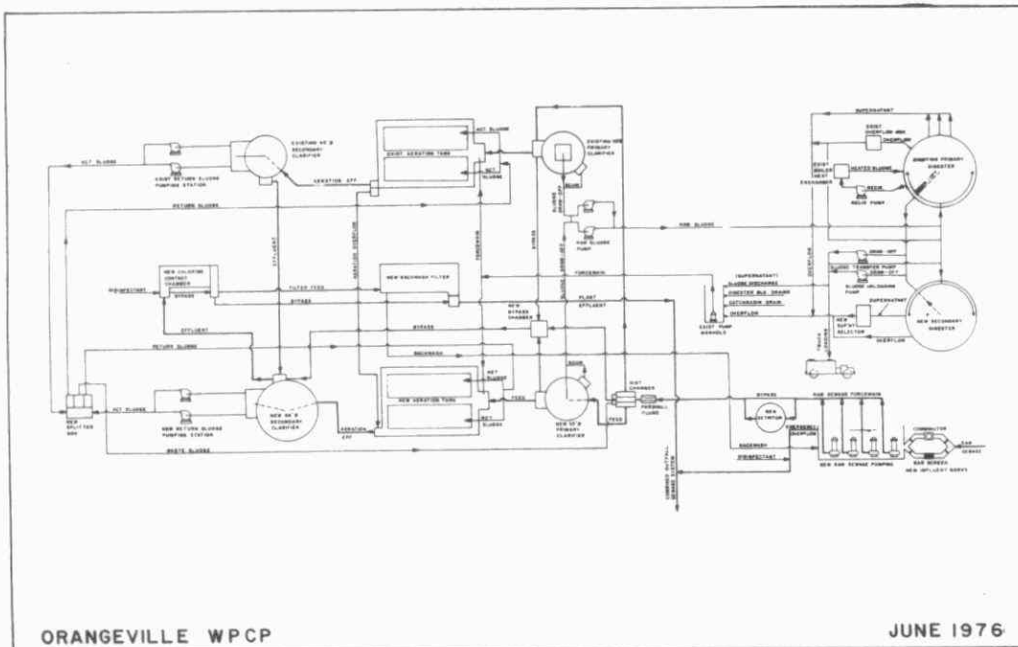
OUTFALL

to Credit River

SLUDGE HANDLING

Digestion System - Single Stage

Type: Carter gas mixed, floating cover
 Size: One 45' dia x 20' swd
 (34,500 cu ft or 215,000 gal)
 Loading: 1.5 lb/cu ft/mo



ORANGEVILLE WPCP

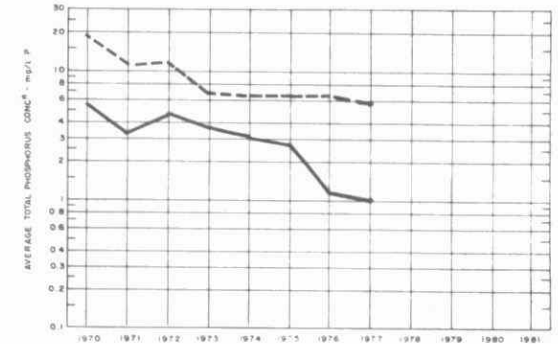
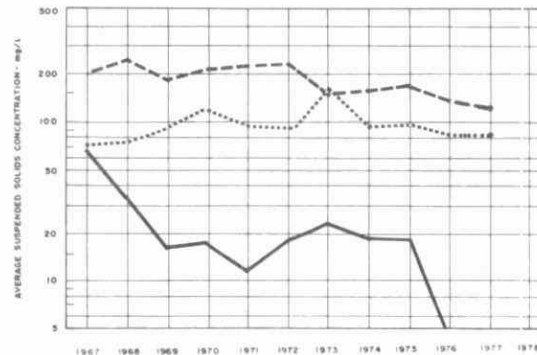
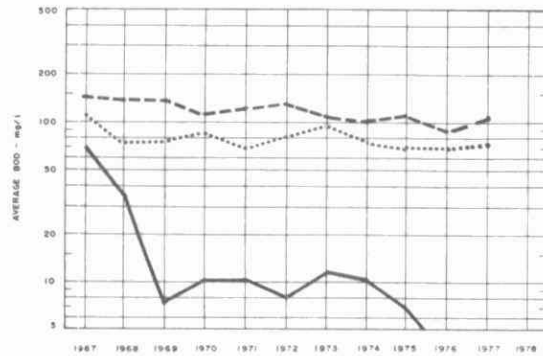
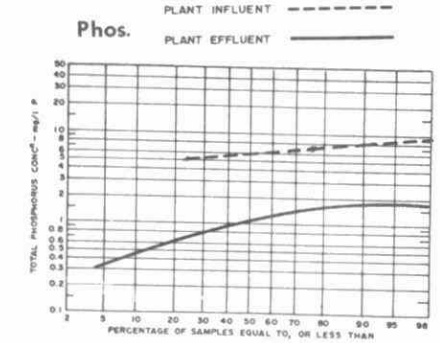
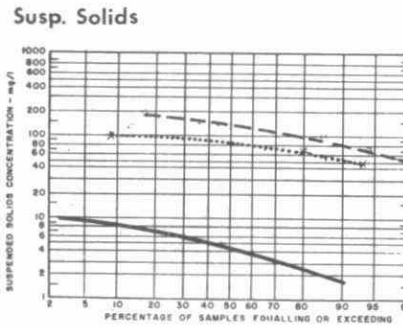
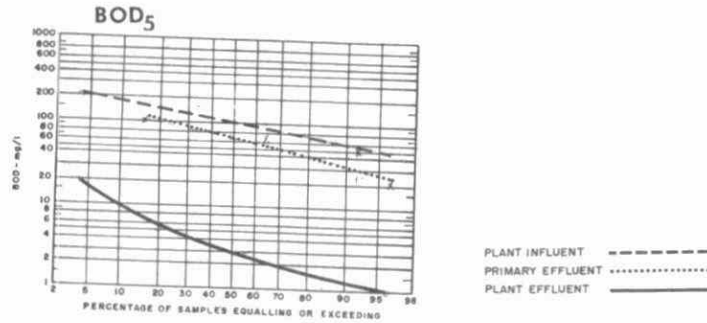
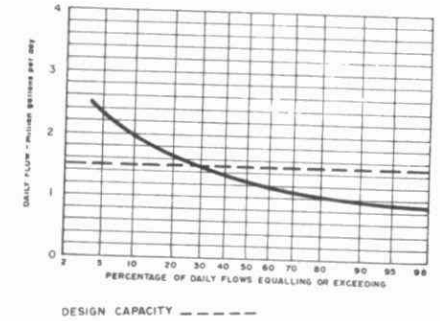
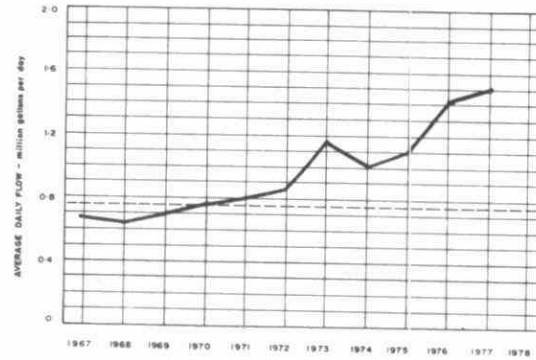
JUNE 1976

PLANT PERFORMANCE SEWAGE

ORANGEVILLE WPCP

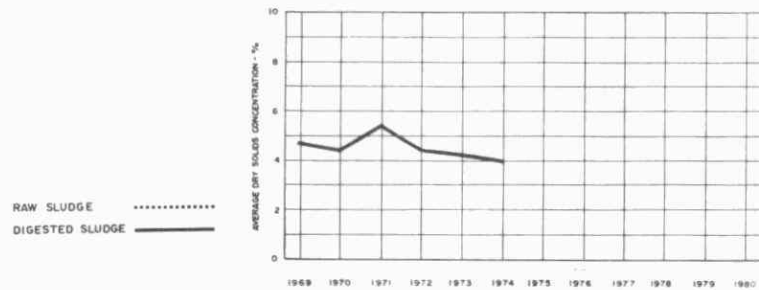
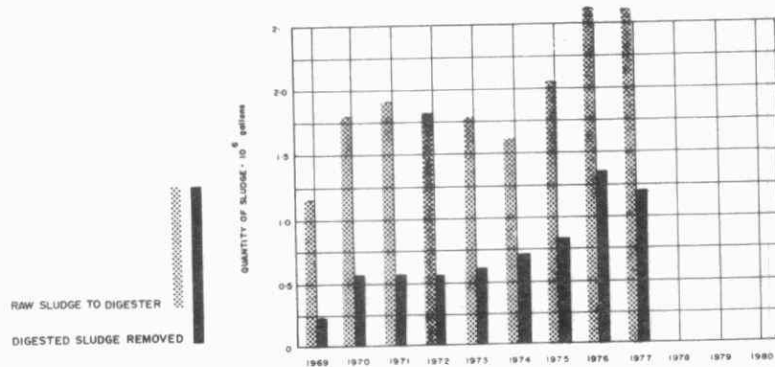
MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW million gallons	AVERAGE DAY mi. gal	MAXIMUM DAY mgd	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l	EFFLUENT mg/l	REDUCTION %	10 ³ pounds	INFLUENT mg/l P	EFFLUENT mg/l P
JAN	32.9	1.1	1.2	170	3	98	55	130	6	95	41	6.8	1.4
FEB	30.5	1.1	1.6	120	5	96	35	160	5	97	47	7.3	1.4
MAR	63.2	2.0	4.0	70	4	94	42	104	6	94	62	4.4	1.2
APR	51.1	1.7	2.7	85	1	99	43	112	10	91	52	5.3	.8
MAY	38.5	1.2	1.4	95	15	95	31	136	5	96	50	8.5	1.3
JUNE	36.0	1.2	1.7	135	4	97	47	156	6	96	54	7.0	1.8
JULY	36.5	1.2	1.9	100	2	97	36	156	3	98	56	6.3	.7
AUG	43.7	1.4	2.7	113	2	98	48	171	3	98	73	6.3	.9
SEPT	47.1	1.6	3.4	70	9	87	29	153	4	97	70	3.1	.8
OCT	63.4	2.0	3.9	120	3	98	74	93	4	96	56	4.5	.8
NOV	48.7	1.6	2.2	115	2	98	55	132	3	98	63	5.7	.8
DEC	54.0	1.7	2.3	110	5	95	57	130	5	96	67	6.3	1.0
TOTAL	545.6	-	-	-	-	-	562	-	-	-	726	-	-
AVG.	45.5	1.5	MAXIMUM 4.0	107	4	96	47	138	5	96	60	5.9	1.0
No. of Samples	-	-	-	25	25	-	-	88	90	-	-	25	27

PROCESS DATA FLOWS



TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL								
		Cl ₂ USED 10 ³ pounds	AVG DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb 800	RAW SLUDGE			DIGESTED SLUDGE				SUPER- NATANT T.S. %	AMOUNT HAULED cubic yards
									QUANTITY 5 10 gallons	TOTAL SOLIDS %	VOL SOLIDS %	QUANTITY 5 10 gallons	TOTAL SOLIDS %	VOL SOLIDS %	NATANT T.S. %		
JAN	9	1.4	4.1	93	79	2800	.08	9.6	263			126					748
FEB	15	1.4	4.7	85	86	2300	.10	12.0	208			92					544
MAR	34	1.3	2.0	58	66	3400	.09	9.4	263			126					748
APR	10	2.0	3.9	40	76	3200	.05	17.8	247			92					544
MAY	15	1.6	4.1	70	81	1700	.13	11.8	186			102					607
JUNE	13	1.6	4.6	78	93	1900	.12	10.6	180			84					500
JULY	22	1.8	4.9	65	81	2000	.10	13.2	188			84					500
AUG	87	1.9	4.4	91	87	2400	.13	6.9	195			105					625
SEPT	69	1.5	4.2	80	84	2000	.16	8.2	191			90					534
OCT	47	1.9	2.9	65	70	1700	.20	7.8	214	4.5	63	84	4.9	42			500
NOV	30	1.8	3.6	85	110	2100	.17	7.4	206			108					642
DEC	22	1.8	3.3	90	92	2000	.20	6.2	265			90					534
TOTAL	373	20.0	-	-	-	-	-	-	-	2606	-	-	1183	-	-	-	7026
AVG.	0.7 (cc. ft/m ³ gal)	1.7	3.7	74	84	2300	.13	10.1	217	4.5	63	99	4.9	42			586



REGION 3
Central

DESIGN DATA

PROJECT: Dysart Twp (Haliburton)

PROJECT NO: 1-0034-66

TREATMENT: Contact Stabilization
operated as Extended Aeration

DESIGN FLOW: *Extended Aer 0.1 MIGD
Contact Stab. 0.21 MIGD

RAW SEWAGE PUMPING

Type: Two, FLYGT. 3151
Size: 264 IGPH @ 65' TDH

GRIT CHANNELS

Two, each 1.5' x 21.5' x 1.7' awd
Volume (each): 342 I.G.
*Retention (each): 4.9 min

COMMINUTOR

Type: Napanee Ind.
Size: 10-inch

AERATION TANK

(Future Aerobic Digester 2)
Volume: 18,200 IG
*Retention: 4.4 hr

AERATION TANK

(Future Contact)
Volume: 23,900 IG
*Retention: 5.7

AERATION TANK

(Future Aerobic Digester 1)
Volume: 24,400 IG
*Retention: 5.8 hr

AERATION TANK

(Future Re-aeration Tank)
Volume: 71,800 IG
*Retention: 17.2 hr

CLARIFIER

Size: 28' dia x 11.8' awd
Volume: 46,500 IG
Retention: 11.2 hr
Loadings:
- Surface: 162 IG/ft²/day
- Weir: 1136 IG/ft/day

CHLORINE CONTACT CHAMBER

Volume: 4560 IG
*Retention:

SLUDGE HG

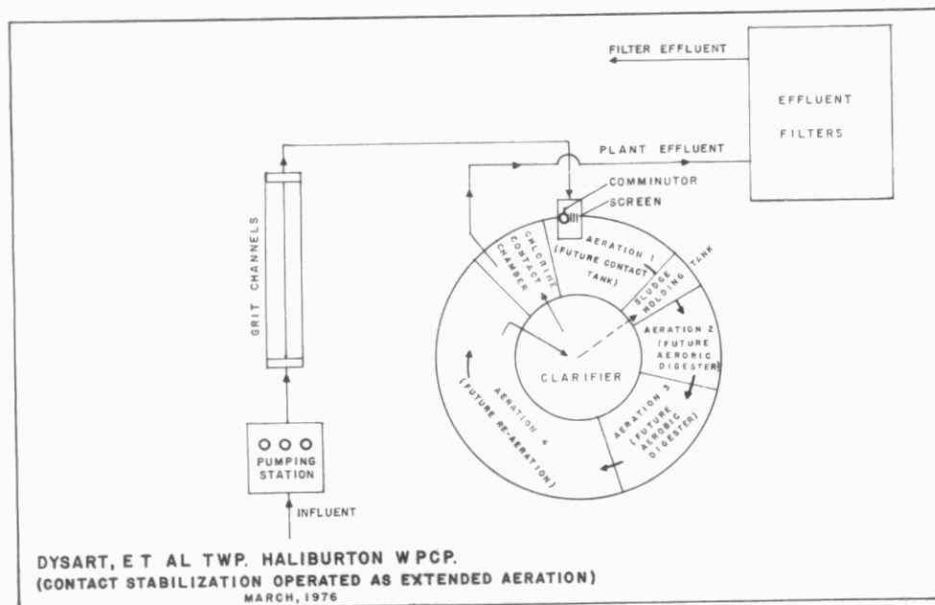
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EFFLUENT P

Size: two, each 35' x 36'

CHLORINATOR

Type: W and T Mod A741
Size: 75 lb/day max

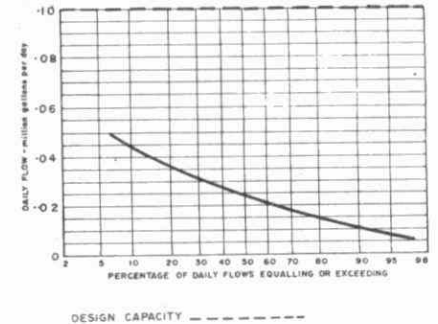


PLANT PERFORMANCE

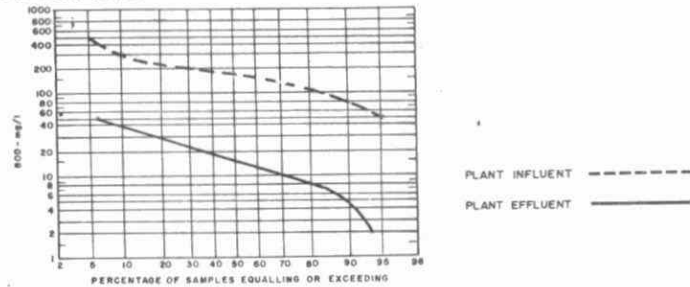
SEWAGE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	pounds	mg/l	mg/l	%	pounds	mg/l P	mg/l P
JAN	.328	.011	.037										
FEB	.447	.016	.031										
MAR	.647	.021	.031	240				892				21.0	
APR	.748	.025	.031										
MAY	.802	.026	.033	240				885				25.0	
JUNE	.777	.026	.030	65				138				5.8	
JULY	.900	.029	.035	165				355				25.0	
AUG	.783	.025	.041	312	29	91	2216	555	60	89	3876	22.2	3.0
SEPT	.713	.024	.038	148	14	91	955	286	59	79	1619	11.6	1.7
OCT	Est. 1.018	.033	N/A	.39	17	88	1242	253	59	77	1975	10.1	3.0
NOV	1.362	.045	.063	110	10	91	1362	162	78	52	1144	8.2	1.5
DEC	1.495	.048	.062	69	18	74	762	162	92	43	1047	3.5	0.9
TOTAL	10.020	-	-	-	-	-	-	-	-	-	-	-	-
AVG.	.835	.027	.063	163	17	90	1219	345	56	84	2413	13.1	2.1
No. of Samples	-	-	-	20	16	-	-	30	19	-	-	20	16

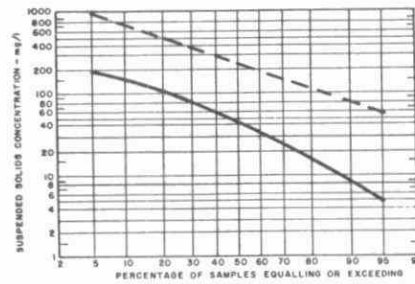
FLOWS



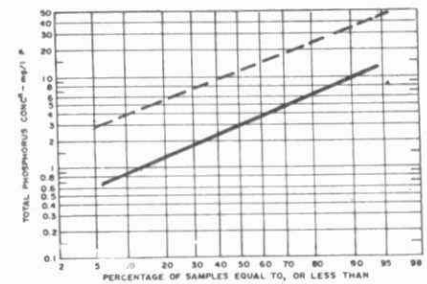
BIOCHEMICAL OXYGEN DEMAND



SUSPENDED SOLIDS



PHOSPHORUS



TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl ₂ USED 10 ³ pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR USED 1000 ft ³ /1000 lb/800	QUANTITY 10 gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	QUANTITY REMOVED 10 gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	AMOUNT HAULED cubic yards
JAN	14			4100									
FEB	11												
MAR	12			3300	.02								
APR	11												
MAY	14			4900	.01		36000						
JUNE	16			3400	.01		39000						
JULY	21			4100	.01		44000						
AUG	14			3200	.03								
SEPT	9			3700	.01								
OCT	10			4500	.01								
NOV	8			4700	.01								
DEC	13			4300	.01								
TOTAL	153		-	-	-	-	-	-	-	-	-	-	-
AVG.	15.3 cu. ft/mi gal			4000	.01		40000						

WASTE STABILIZATION PONDS WITH AERATED CELLS

REGION 1
Southwestern

Waste Stabilization Pond

PROJECT : KINCARDINE

Cell Acreage : 16.0 + 16.0

Total Acreage : 32.0

Commenced Operation : Jan. 1965

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

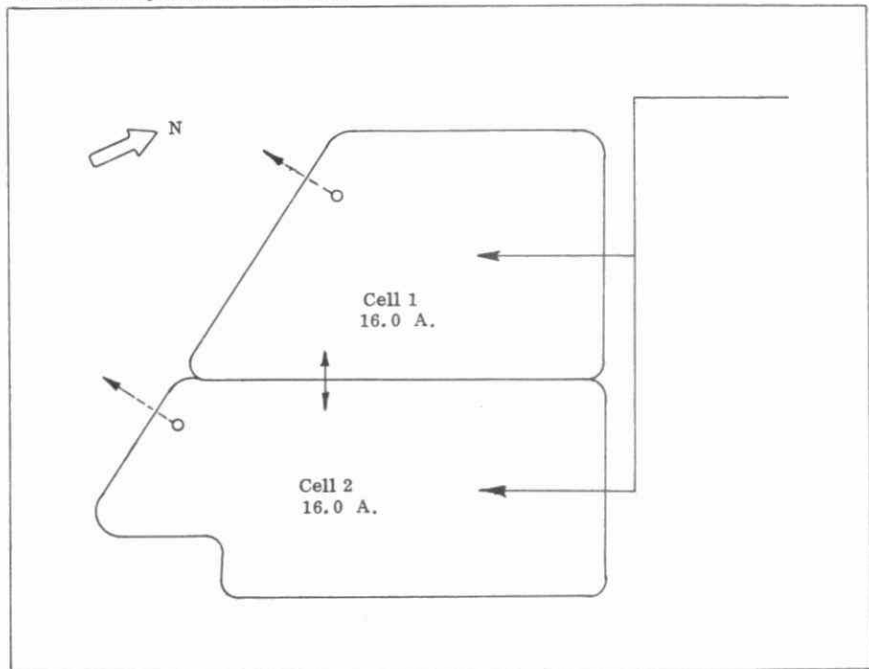
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 1040 I gpm
Pump 2 : 1040 I gpm

Total Cap : 1160 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	11.56	.37	.29	129	43	18	109	32	9	7.3	5.3	4.8	35	29	21
FEB	7.50	.27	.49	33	28	16	39	24	7	3.0	5.6	5.8	52	30	27
MAR	16.18	.52	1.15	70	20	13	452	17	5	5.6	6.1	5.0	33	38	23
APR	11.24	.37	.74	58	15	10	102	26	24	3.4	2.7	2.4	16	14	14
MAY	11.46	.37	1.36	79	13	6	91	13	10	5.1	3.7	3.3	27	15	8
JUN	8.54	.28	.44	198	12	5	351	24	9	9.9	4.0	2.6	52	13	6
JUL	8.43	.27	.38	161	13	12	231	23	13	8.3	3.8	2.2	34	12	4.8
AUG	9.00	.29	4.46	96	18	10	125	24	9	6.5	3.9	2.4	34	13	4.8
SEP	10.00	.33	.32	311	17	11	428	17	10	9.1	4.2	4.0	44	10	7.5
OCT	9.00	.32	N/A	90	10	13	115	22	17	7.0	3.7	3.2	32	13	6.3
NOV	8.00	.27	N/A	77	11	12	91	20	18	4.2	3.7	3.1	30	13	6.5
DEC	12.35	.40	.491												
TOTAL	123.26														
AVG.		.34		119	16	11	210	21	12	6.4	4.0	3.4	35	15	10.0
MAX.			4.46												
NO. OF ACRES	32	Number of samples		22	51	20	22	51	20	21	51	19	21	51	20
LOADING lb/acre/day	13.0														

Waste Stabilization Pond

PROJECT : LISTOWEL

Cell Acreage : 1.5 + 42.4 + 26.6

Total Acreage : 70.5

Commenced Operation : (Facultative Cells) : Sept. 1961
 Expansion : (Aerated Cell) : Sept. 1971

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other : Dec-Apr : Continuous
 July-Oct : Spray Irr.

Phosphorus Removal:

- Batch Pre 1976
- Continuous Post 1976
- None

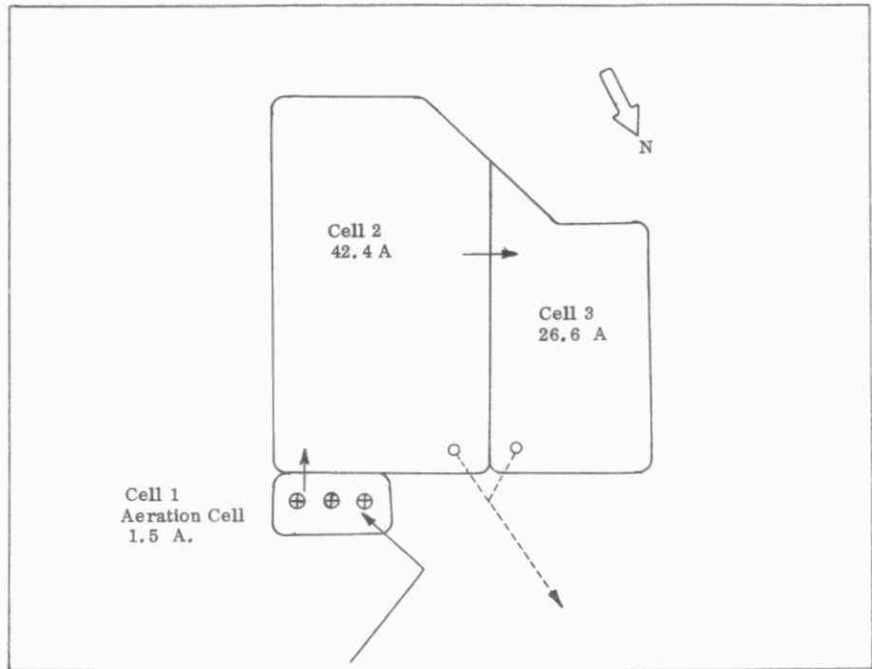
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 972 usgpm
 Pump 2 : 972 usgpm

Total Cap : 1750 usgpm



Significant Industries : Campbell Soups Ltd

MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	
JAN	26.6	.86	1.23	275		17.5	123		25	3.6		.9	33.4		13.5	
FEB	27.4	.98	1.22	265		21	263		18	6.5		.7	43.8		15.8	
MAR	50.3	1.62	2.33	485		36	175		28	8.1		.9	25.8		14.7	
APR	36.7	1.22	1.79	118		21	79		47	2.3		.6	20.0		19.2	
MAY	26.3	.85	1.16	215	20.5		132	44.5		3.5	.6		24.0	7.7		
JUN	27.0	.90	1.30	213	14.0		102	27.5		3.0	.6		22.7	7.5		
JUL	22.7	.73	1.17	295	6.6		166	7.5		5.5	.9		29.7			
AUG	25.3	.82	1.67	84	8.0		294	5.0		4.0	.9		22.1	9.7		
SEP	35.9	1.20	2.30	240	5.2		137	14.5		5.0	1.1		20.2	5.1		
OCT	41.8	1.35	1.93	204	8.2		101	5.0		3.0	.9		24.5			
NOV	36.7	1.22	1.80	170		4.6	170		6.2	4.0		1.0	25.0		12.9	
DEC	37.2	1.20	1.99	264		6.0	146		3.0	4.1		1.0	18.1		11.6	
TOTAL	393.9															
AVG.		1.07		236	10.4	17.7	157	17.3	21.2	4.4	.9	.9	25.6	7.9	14.4	
MAX.			2.33													
NO. OF ACRES	70.5	Number of samples			24	6	6	24	6	6	24	16	14	24	6	12
LOADING lb/acre/day	36.6															

Waste Stabilization Pond

PROJECT : THORNBURY

Cell Acreage : 4.33 + 9.67 + 10.19

Total Acreage : 24.24

Operation :

- Series
- Parallel
- Other : series-parallel

Discharge :

- Seasonal
- Continuous
- Annual
- Other : semi-annual

Phosphorus Removal:

- Batch
- Continuous
- None

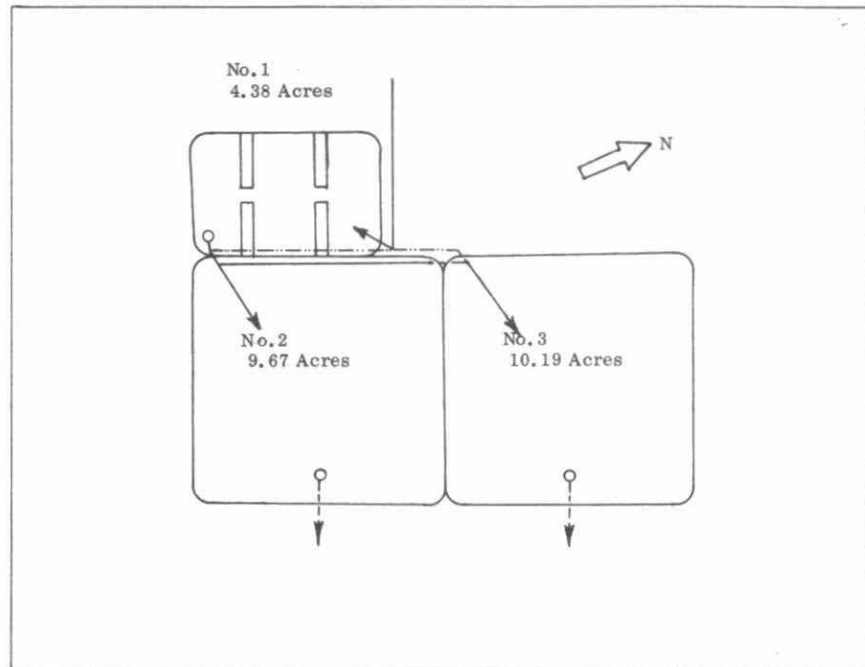
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 920 Igpm
Pump 2 : 920 Igpm

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	6.03	.19	.25	189	29	29	140	40	26	3.1	2.4	2.0	8.9	4.8	2.6
FEB	5.74	.21	.25	42	34	30	67	50	27	2.3	2.3	2.1	7.8	6.1	3.3
MAR	15.38	.50	.88	565	39	25	128	64	18	2.3	1.9	1.8	7.8	5.9	3.4
APR	8.15	.27	.48	154	23	16	113	49	824	1.9	1.4	1.5	8.2	5.0	4.3
MAY	6.82	.22	.31	30	10	7	69	26	36	1.9	2.0	.7	8.3	6.0	1.9
JUN	6.03	.20	.26	12	15		31	20		1.2	2.0		6.4	5.6	
JUL	5.11	.16	.29	18	11		26	16		2.7	1.6		12.0	2.9	
AUG	4.99	.16	.19	21	3	2	19	4	1	1.8	2.3	7	8.5	4.0	1.4
SEP	5.07	.17	.26	10	3		6	3		.9	3.3		5.5	7.9	
OCT	8.03	.26	.38	1287	31	3	351	26	3	2.4	2.0	1.5	11.9	3.2	1.6
NOV	7.76	.26	.36	665	55	5	287	40	5	3.2	2.1	1.3	12.6	6.0	1.5
DEC	6.85	.22	.41	250	95	5	108	70	9	2.9	1.9	1.7	11.0	4.0	2.8
TOTAL	85.96														
AVG		.24		433	30	14	180	35	66	2.6	2.0	1.4	10.5	5.1	2.4
MAX			.88												
NO. OF ACRES	24.24	Number of samples		39	39	16	37	39	16	39	38	16	39	38	16
LOADING lb/acre/day	41														

REGION 2
West Central

Waste Stabilization Pond

PROJECT : WATERFORD

Cell Acreage : 2.2 (Aeration) + 16.5

Total Acreage : as above

Commenced Operation (Facultative Cell) : Aug 1962
Expansion (Aeration Cell) : Jan 1975

Operation :

- Series
- Parallel (Aerated Lagoon)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

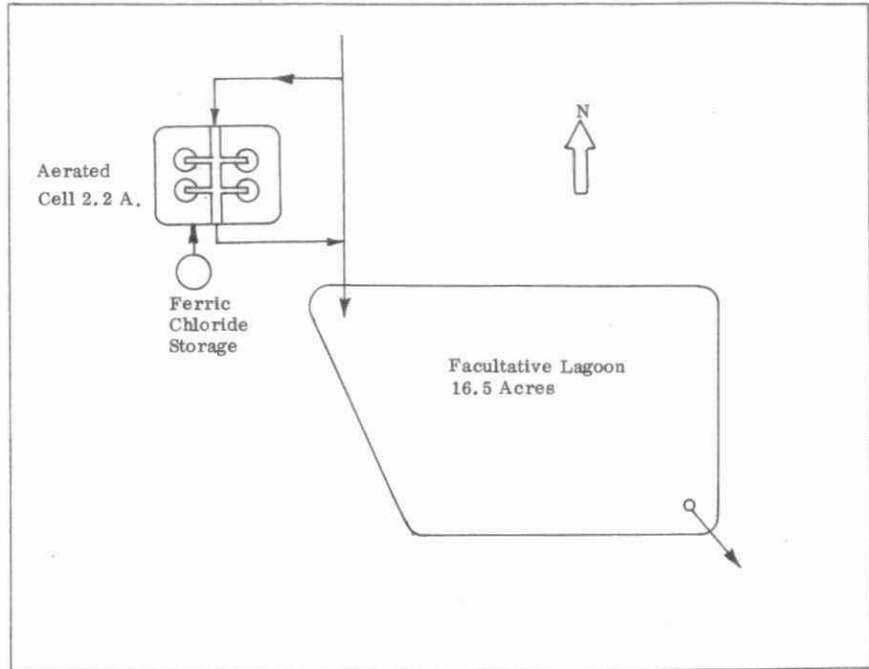
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 1500 US gpm
Pump 2 : 1500 US gpm

Total Cap : N/A



Significant Industries : Canadian Cannery, Toronto Mill, Stock Woolen Mill.

MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	AERATED CELL EFFLUENT mg/l	LAGOON EFFLUENT mg/l	INFLUENT mg/l	AERATED CELL EFFLUENT mg/l	LAGOON EFFLUENT mg/l	INFLUENT mg/l	AERATED CELL EFFLUENT mg/l	LAGOON EFFLUENT mg/l	INFLUENT mg/l	AERATED CELL EFFLUENT mg/l	LAGOON EFFLUENT mg/l
JAN	7.24	.23	.62	138	46	18	121	36	19	3.5	4.4	2.7	16	26	24.0
FEB	7.41	.26	.46			2									
MAR	9.03	.29	.54	42	22	24	32	14	26	1.2	3.1	2.5	13	19	21.0
APR	8.66	.29	.38												
MAY	8.95	.29	.42	110	26	3	49	44	4	3	4.9	1.1	17	26	11.8
JUN	10.29	.34	.44	1000	57	12	206	30	31	6.2	4.4	1.2	33	14	4.3
JUL	9.39	.30	.40												
AUG	10.65	.34	.55	630	33	23	436	50	38	8.5	4.5	3.1	52	21	8.9
SEP	12.65	.42	.64												
OCT	9.17	.30	.41												
NOV	11.15	.37	.53	20	37	3	21	33	5	1.5	4.9	.9	11	22	7.3
DEC	11.37	.37	.54												
TOTAL	115.98														
AVG.		.38		323	37	14	144	35	21	4.0	4.4	1.9	24	21	13
MAX.			.64												
NO. OF ACRES	Number of samples			6	12	6	6	12	6	6	12	6	6	12	6
LOADING lb/acre/day															

REGION 3
Central

REGION 4
Southeastern

Waste Stabilization Pond

PROJECT : ALMONTE

Cell Acreage : 23.4 + 7.3 + 9.0 + 6.0 + Aeration Cell

Total Acreage : 45.7 + Aeration Cell

Commenced Operation : Sept. 1962 - Aeration Added Sept. 1975

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

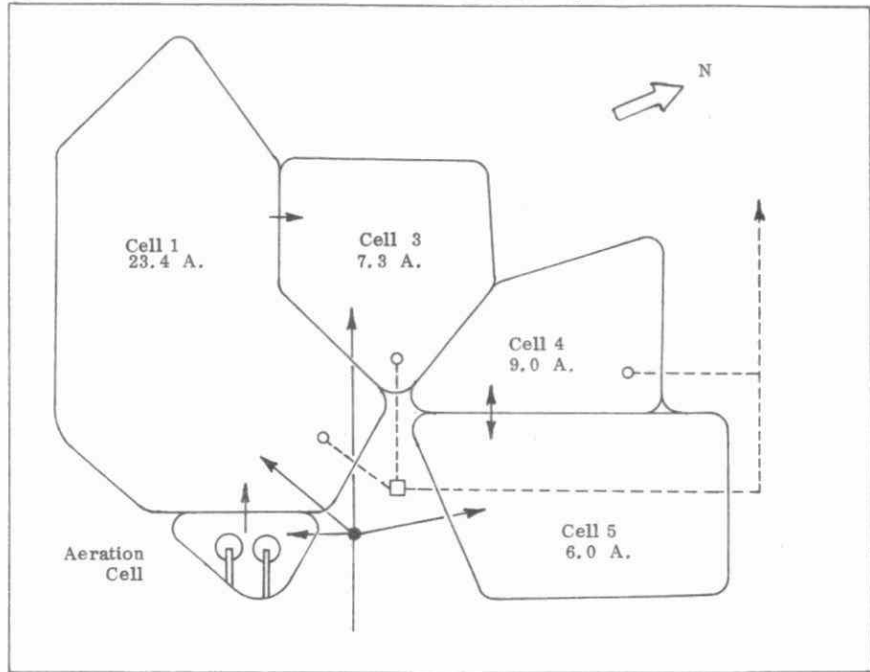
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 650 I gpm
Pump 2 : 650 I gpm

Total Cap : 1000 I gpm



Significant Industries : Woolen Mills

MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	10.25	.33	.63	63			101			5.8			42		
FEB	10.64	.38	.54	110			120			5.8			32		
MAR	21.19	.68	.91	40			31			2.9			17		
APR	19.68	.66	1.01	250			45			3.4			12		
MAY	12.31	.40	.49	82			85			5.1			18		
JUN	10.56	.35	.44	58		4	155		15	7.1		2.4	45		1
JUL	11.37	.37	.67	183	4		141	10		7.4		2.4	46		1
AUG	10.30	.33	.51	75	15	17	87	60	41	4.4		36.5	16		6
SEP	11.81	.39	.41	73	27	20	90	30	44	3.6		4.8	17		7
OCT	17.38	.56	.81	75	8		108	17		5.8		2.6	34		6
NOV	15.73	.52	N/A	31	10	14	70	15	12	3.2		1.8	19		1
DEC	16.50	.54	N/A	46			83			4.3			28		
TOTAL	167.72														
AVG.		.46	1.01	84	12	15	90	22	28	4.7		8.9	22		4
MAX.															
NO. OF ACRES	45.7	Number of samples		38	10	14	37	10	16	37		22	37		22
LOADING lb/acre/day	8														

Waste Stabilization Pond

PROJECT : GANANOQUE

Cell Acreage : 16.8 + 22.3 + 30.3

Total Acreage : 69.4

Commenced Operation : Apr. 1966

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch (1976)
- Continuous
- None (1975)

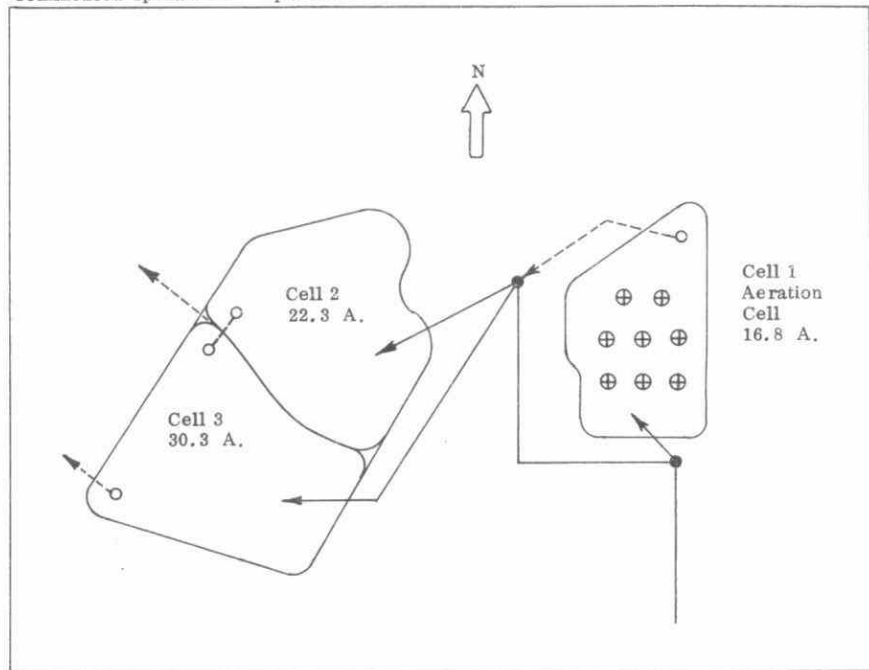
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 1650 I gpm
Pump 2 : 1650 I gpm

Total Cap : 2400 I gpm



Significant Industry : Ault Foods

MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
JAN	80.6	2.60	3.01													
FEB	31.2	1.12	2.44													
MAR	49.2	1.59	2.62													
APR	35.3	1.18	1.50													
MAY	29.5	.95	1.13													
JUN	26.3	.88	1.08		13			29			2.5			3.7		
JUL	26.5	.85	.97	110	10		140	30		7.0	2.2		26	3.7		
AUG	33.4	1.08	1.96													
SEP	30.2	1.01	1.51			9			25			2.0			3.5	
OCT	35.3	1.14	2.33													
NOV	37.6	1.25	1.58													
DEC	33.5	1.10	4.17													
TOTAL	448.6															
AVG.		1.23		110	12	9	140	30	25	7.0	2.4	2.0	26	3.7	3.5	
MAX.			4.17													
NO. OF ACRES	70	Number of samples			1	4	2	1	22	1	1	24	2	1	21	2
LOADING lb./acre./day	19															

WASTE STABILIZATION PONDS

REGION 1
Southwestern

Waste Stabilization Pond

PROJECT : BELMONT

Cell Acreage : 8.1 + 8.1

Total Acreage : 16.2

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

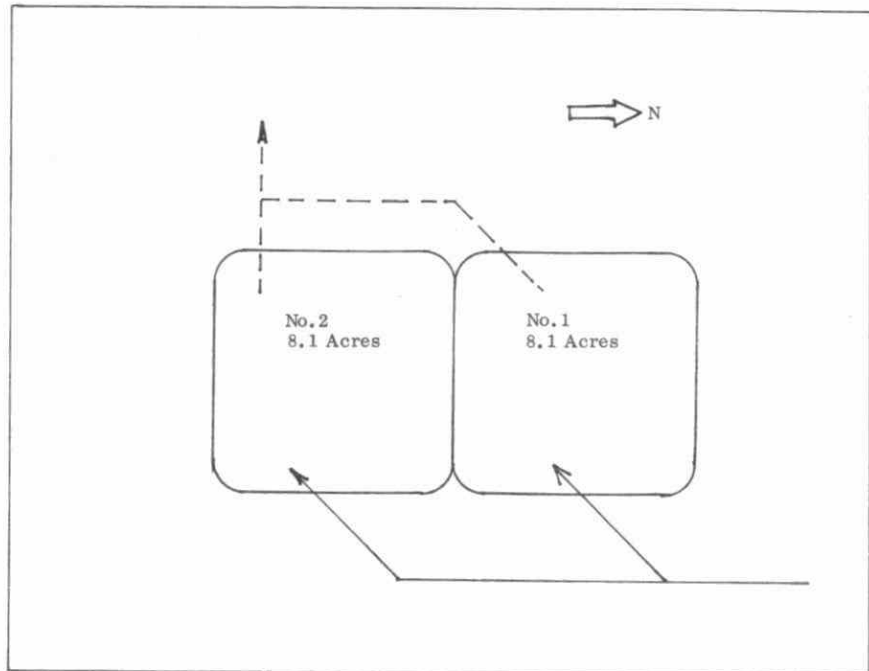
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 344 Igpm
 Pump 2 : 100 Igpm
 (Washburn St.)
 Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN				60			130			4.3			23.0		
FEB				42			21			5.5			36.0		
MAR				20			198			1.0			3.8		
APR				58	14		195	48		3.3	.7		17.0	4.5	
MAY				77	7		97	8		5.6	.12		29.0	1.2	
JUN				109			214			7.7			27.7		
JUL				127	13		169	49		8.0	.22		47.0	2.8	
AUG				149	15		161	45		8.9	.37		42.0	3.2	
SEP				126	20		103	44		7.0	.55		43.3	3.8	
OCT				531	13		357	11		7.4	.20		24.0	2.2	
NOV				115	15		254	20		6.3	.37		18.0	3.0	
DEC				30			86			1.5			8.0		
TOTAL															
AVG.				13	13		174	32		6.3	.36		30.4	2.9	
MAX.															
NO. OF ACRES	16.2	Number of samples		21	13		21	14		21	14		21	14	
LOADING lb/acre/day															

Waste Stabilization Pond

PROJECT : CHESLEY

Cell Acreage : 6 + 5 + 6

Total Acreage : 17.0

Commenced Operation : Oct. 1963

Operation :

- Series
- Parallel
- Other : 1 & 2 parallel series to #3

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal :

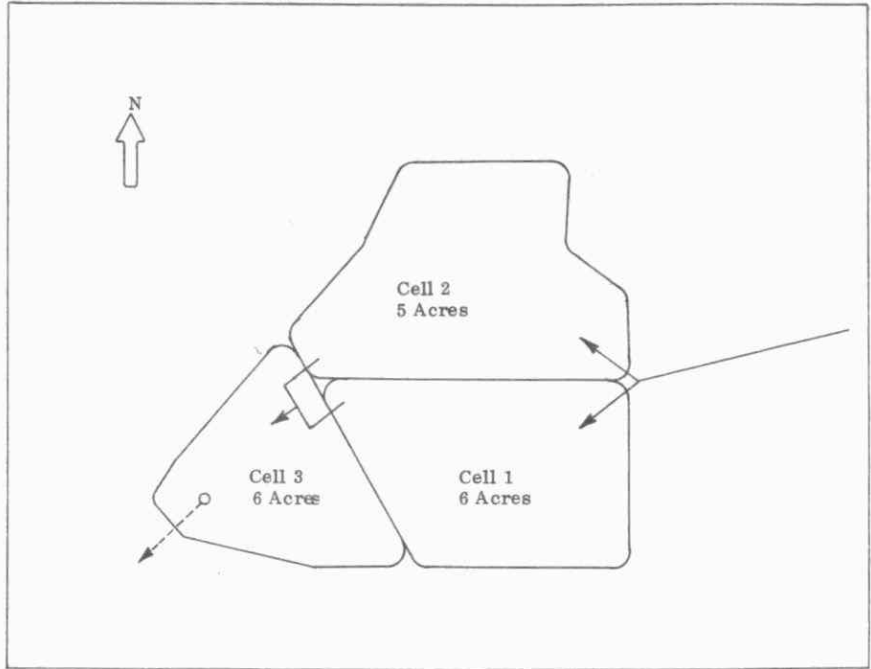
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : N/A
 Pump 2 : N/A
 Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW Mij Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	
JAN																
FEB				20	37	23	62	9	8	1.0	3.3	3.5	5.3	17.7	16.8	
MAR				30	19	15	38	27	24	2.0		1.4	9.0		6.1	
APR																
MAY				40	15	8	79	12	19	3.3		1.6	45.5		2.2	
JUN																
JUL																
AUG				58	12	10	37	18	14	2.8	3.0	3.4	9.3	8.9	6.1	
SEP					25	16		10	18		2.7	2.9			5.9	
OCT											7.3					
NOV	10.15	.32	N/A	76	13	2	66	12	2	2.5	2.1	1.8	12.0	7.9	3.3	
DEC	7.11	.23	N/A													
TOTAL																
AVG.		.28		44	20	12	56	15	11	2.3	2.8	2.4	16.2	11.5	6.9	
MAX.			N/A													
NO. OF ACRES	17	Number of samples			5	12	6	5	12	6	5	10	6	5	6	5
LOADING lb/acre/day	7.25															

Waste Stabilization Pond

PROJECT : COMBER (TILBURY W.)

Cell Acreage : 6.0 + 6.0

Total Acreage : 12.0

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

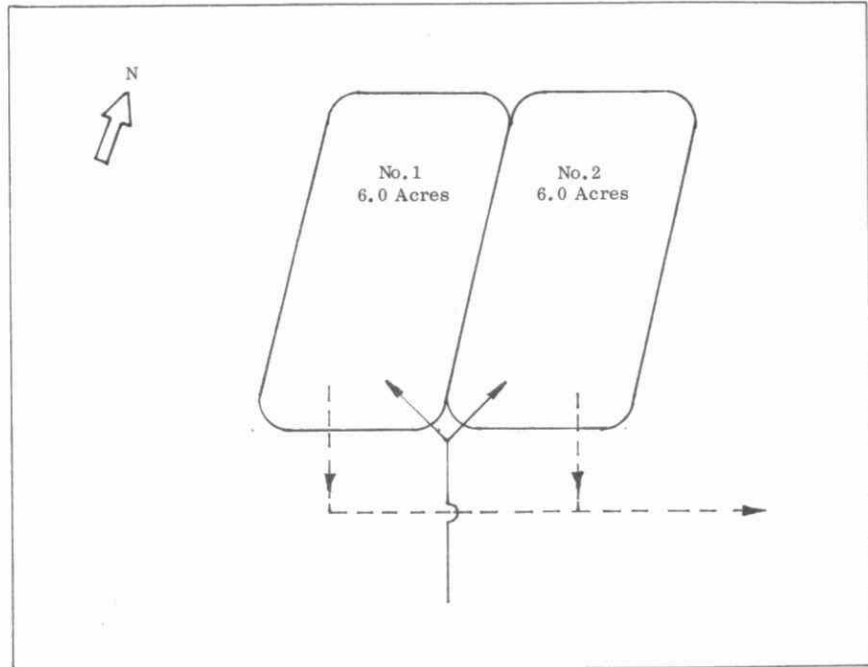
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 :
Pump 2 :

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	1.70	.055	.089							1.1			5		
FEB	2.30	.082	.119		49			60							
MAR	2.75	.088	.120												
APR	2.46	.082	.257	6			11								
MAY	2.04	.066	.125	8			13								
JUN	1.91	.063	.092	8			43								
JUL	1.73	.055	.070							1.7			10		
AUG	1.75	.056	.097	16			37			3.0			8		
SEP	2.66	.088	.358	2			8			.5			2		
OCT	1.91	.064	.086	8			18			.9			3		
NOV	1.44	.048	.065	47			55			3.9			13		
DEC	2.07	.066	.135												
TOTAL	247.2														
AVG.		.067		14	49		26	60		2.0			7		
MAX.			.358												
NO. OF ACRES	12	Number of samples		17	2		17	2		13			15		
LOADING lb/acre/day	7.8														

Waste Stabilization Pond

PROJECT : COTTAM (GOSFIELD)

424

Cell Acreage : 10.0 + 10.0

Total Acreage : 20.0

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other : Semi-annual

Phosphorus Removal:

- Batch
- Continuous
- None

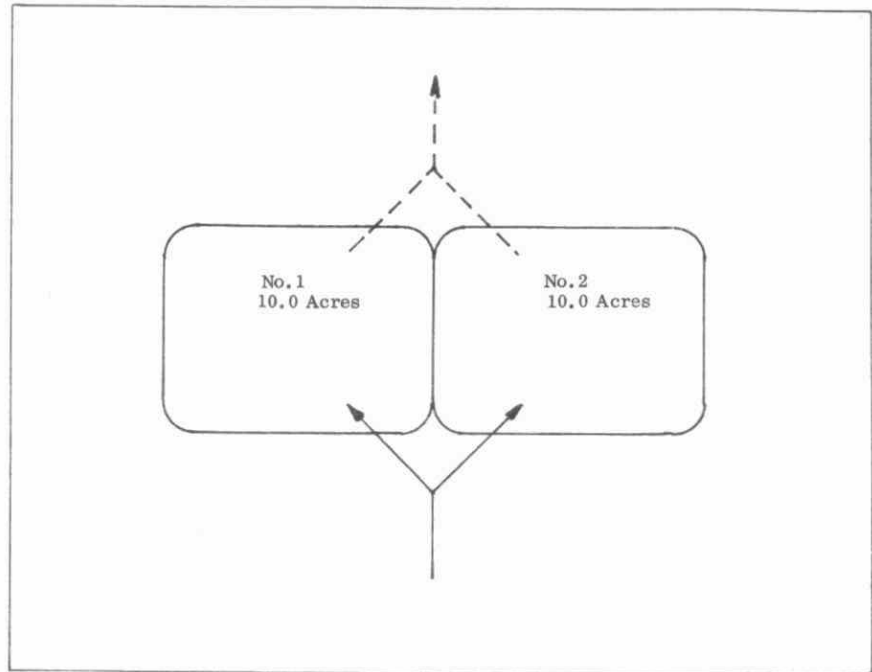
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 370 (U.S.)gpm
 Pump 2 : 370(U.S.)gpm

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	.78	.025	.046												
FEB	.86	.030	.071												
MAR	1.13	.036	.061	20		10	19		13						
APR	1.30	.043	.073												
MAY	1.08	.034	.059			1			23		.10				1.1
JUN	.98	.032	.050	44		12	60		70	4.5	1.5	26			9.3
JUL	1.01	.033	.050												
AUG	1.00	.032	.066												
SEP	1.28	.042	.078												
OCT	1.46	.047	1.054												
NOV	1.30	.043	.063												
DEC	1.68	.054	.097												
TOTAL	13.86														
AVG.		.037		32		7	39		35	4.5	.8	26			5.2
MAX.			1.054												
NO. OF ACRES	20	Number of samples		2		3	2		3	1	2	1			2
LOADING lb./acre/day	.59														

Waste Stabilization Pond

PROJECT : DUNDALK

Cell Acreage : 8 + 8

Total Acreage : 16

Commenced Operation : Dec. 1973

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

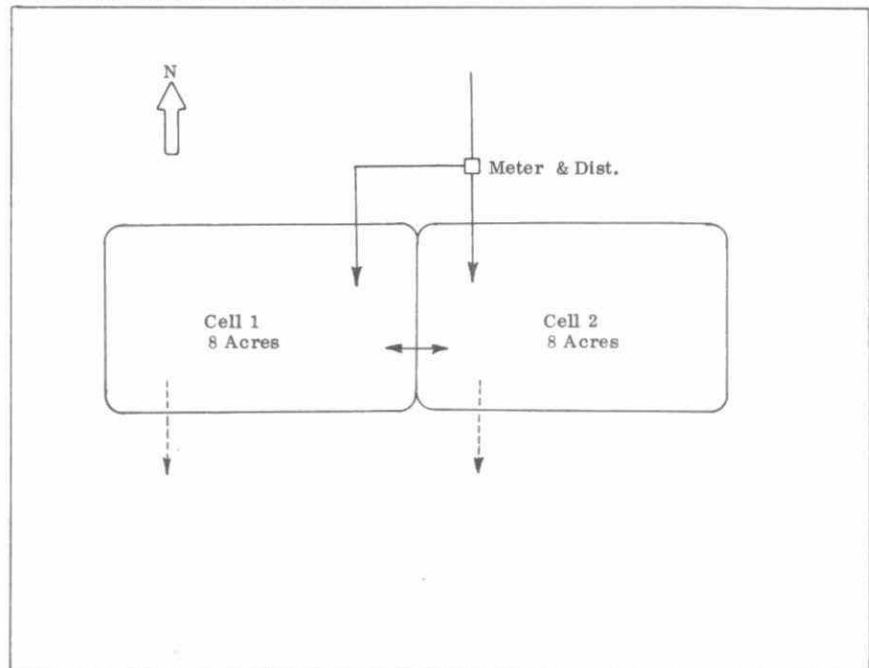
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : (GRAVITY FLOW)
 Pump 2 :

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	3.14	.101	N/A	108			105								
FEB	2.83	.100	N/A												
MAR	9.00	.290	N/A	66			86								
APR	6.40	.213	N/A	50	17		55	24							
MAY	3.62	.116	N/A	77	18	4	88	21	9	5.5	1.1	.4	38	7.0	3.4
JUN	3.17	.105	N/A												
JUL	3.12	.100	N/A		15			30			1.4			9.0	
AUG	3.96	.127	N/A	94	19		124	44		5.3	1.6		29	6.8	
SEP	5.35	.178	N/A												
OCT	6.11	.197	N/A	51	11	13	72	15	15	4.5	1.6	1.1	18	6.6	4.5
NOV	5.07	.169	N/A		5	13		10	24		.2	.4		2.7	3.6
DEC	5.08	.163	N/A	58	12		84	148		2.8	1.0		18	10.2	
TOTAL	56.86														
AVG.		.155		69	13	7	86	35	14	4.8	.9	.5	28	7.0	3.6
MAX.			N/A												
NO. OF ACRES 16	Number of samples			11	18	14	10	18	14	7	13	14	7	13	14
LOADING lb/acre/day 6.6															

Waste Stabilization Pond

PROJECT : DUTTON

Cell Acreage : 10

Total Acreage : 10

Commenced Operation : Nov. 1972

Operation :

- Series
- Parallel (SINGLE CELL)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

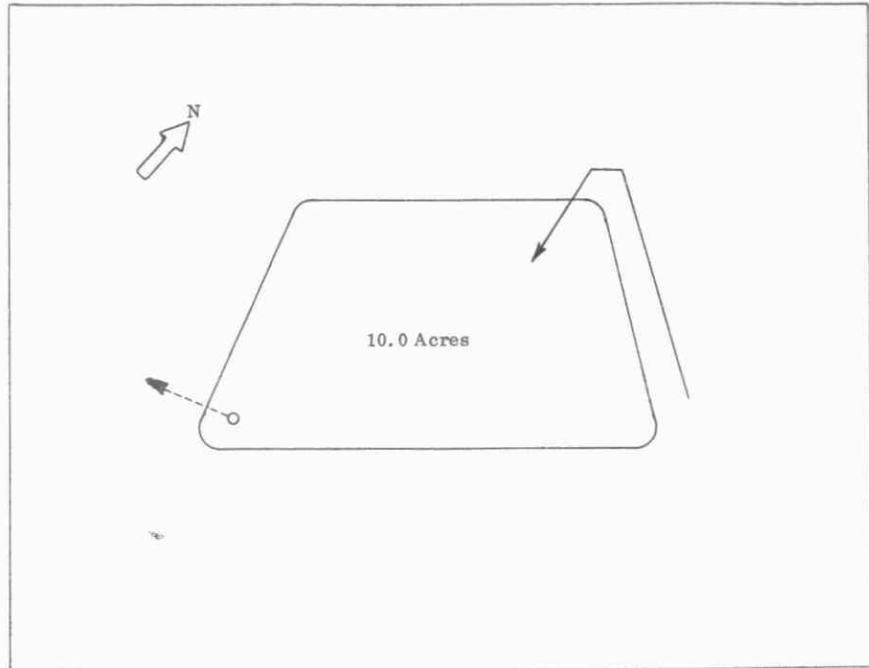
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 350 I gpm
 Pump 2 : 350 I gpm

Total Cap : 350 I gpm



Significant Industries: Laundromat, Creamery

MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	1.97	.063	.091	275			547			12.8			53.3		
FEB	1.91	.068	.079	225			1992			10.2			43.8		
MAR	3.25	.104	.173												
APR	2.42	.080	.117	148			188			8.0			47.8		
MAY	2.04	.065	.079	225	21		274	96		11.5	2.8		43.5	14.6	
JUN	1.87	.062	.081	134		23	121		33	9.5		.7	83.0		9.60
JUL	2.00	.064	.082	114	260		223	989		8.8	14.2		52.5	92.5	
AUG	2.41	.077	.084	53	101		59	238		4.0	4.4		27.4	32.7	
SEP	2.44	.081	.185	128	26		188	385		9.3	4.8		52.0	31.0	
OCT	4.02	.130	.147	205	27		271	95		10.0	2.0		85.0	5.9	
NOV	2.27	.075	.136		6	17		20	81		20	.8		4.9	8.55
DEC	3.21	.189	.196												
TOTAL	29.81														
AVG.		.082		167	77	20	406	294	54	8.8	4.9	.5	51.7	30.6	9.10
MAX.			.196												
NO. OF ACRES	10	Number of samples		11	7	9	11	7	9	11	7	9	11	7	9
LOADING lb/acre/day	13.5														

Waste Stabilization Pond

PROJECT : EAST ZORRA - TAVISTOCK TWP.
(TAVISTOCK)

Cell Acreage : 15.0 + 17.0
Total Acreage : 32.0

Commenced Operation : Nov. 1962

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

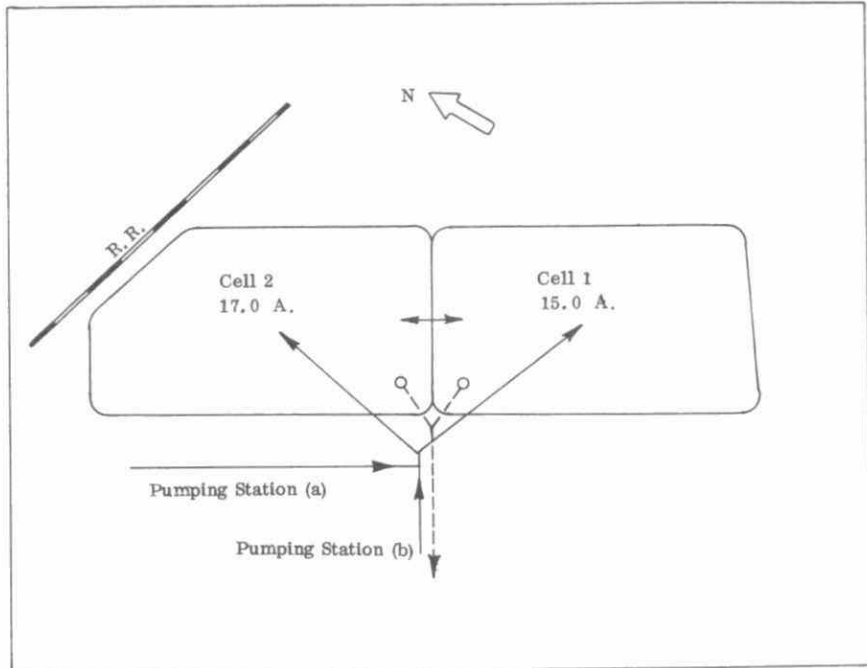
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 417 (a) 417 (b)
Pump 2 : 417 (a) 417 (b)

Total Cap : N/A



Significant Industries : Textile Mfg.

MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	5.61	.18	.52												
FEB	5.28	.19	.42												
MAR	13.19	.43	1.41	250			225								
APR	8.87	.30	1.00	38			92								
MAY	5.22	.17	.21	79		42	101		99	10.0		2.0	39.9		13.6
JUN	5.83	.19	.54	325			208			15.9			62		
JUL	4.68	.15	.17	383			258			2.8			61		
AUG	4.64	.15	.31	255			147			10.8			46		
SEP	7.78	.26	.71												
OCT	8.26	.27	.60												
NOV	6.99	.23	.46	420		10	214		28	16.4		10.9	53		4.6
DEC	8.45	.27	.61	335			261			14.4		1.1	51		5.9
TOTAL	84.80														
AVG.		.23		220		26	170		64	10.4		5.5	52.2		8.5
MAX.			1.41												
NO. OF ACRES	32	Number of samples			20		28	20		28	12		34	12	34
LOADING lb/acre/day	15.8														

Waste Stabilization Pond

PROJECT : ENNISKILLEN TWP
(OIL CITY)

Cell Acreage : 5.4
Total Acreage : 5.4

Commenced Operation : May 1975

Operation :

- Series
- Parallel (SINGLE CELL)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

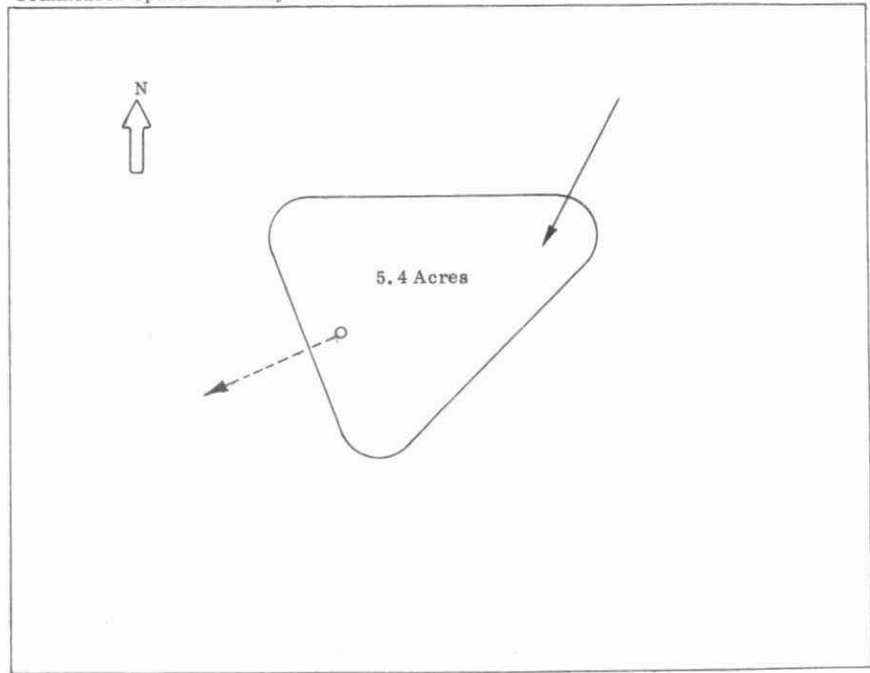
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 83 I gpm
Pump 2 : 83 I gpm
Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	
JAN	.270	.009	.011													
FEB	.304	.001	.027													
MAR	.397	.013	.029													
APR	.349	.012	.036													
MAY	.298	.010	.012													
JUN	.294	.010	.013													
JUL	.303	.010	.012													
AUG	.319	.010	.012													
SEP	.413	.013	.046													
OCT	.365	.012	.019													
NOV	.358	.012	.023													
DEC	.420	.013	.021													
TOTAL	4.090															
AVG.		.011														
MAX.			.046													
NO. OF ACRES	5.4			Number of samples												
LOADING	lb./acre/day															

Waste Stabilization Pond

PROJECT : ESSEX (North-East)

Cell Acreage : 12 + 12

Total Acreage : 24

Commenced Operation : Approx. 1963/64

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

Flow Measurement :

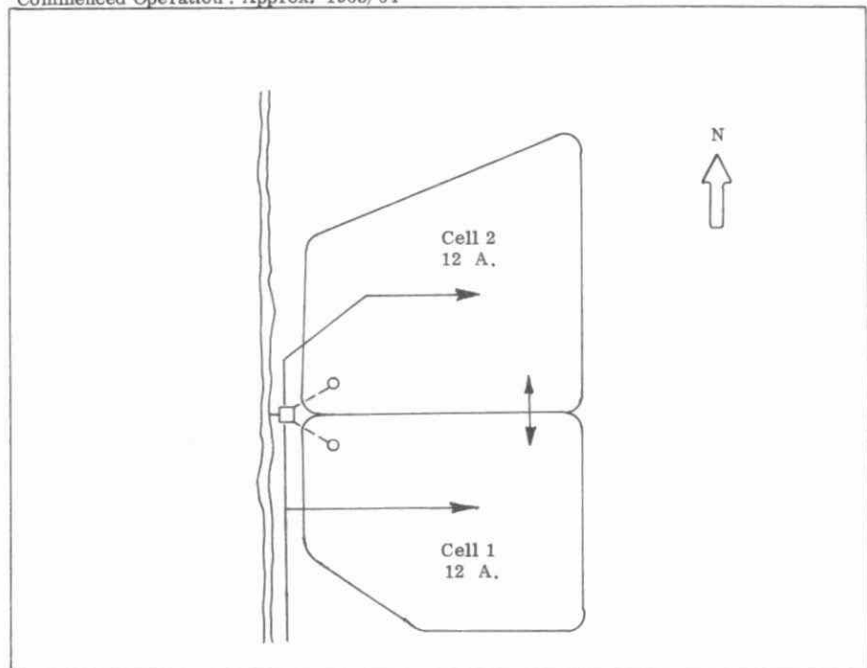
- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 1000 gpm

Pump 2 : 1000 gpm

Total Cap : 1000 gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
JAN	3.35	.108	.165	110			65									
FEB	8.31	.296	1.280	250			84			3.1						
MAR	7.32	.236	.991	50	729	15	26	9	15							
APR	2.03	.067	.270	6		11	10		49							
MAY	2.68	.086	.335	49	15	12	113	52	89	5.0	.9		41	12	6.5	
JUN	5.29	.176	.507													
JUL	4.51	.145	.446	49	5	9	12	14	14							
AUG	5.70	.183	1.275	66	15	14	63	51	40	5.9	1.9	1.4	28	6	4.7	
SEP	10.53	.350	1.838													
OCT	2.90	.093	.194	23	15	16	21	26	191	4.0	.8	.8		3	3.6	
NOV	5.38	.175	.411	51		18	7		132	4.3		1.0	24		5.5	
DEC	4.62	.149	.296													
TOTAL	62.62															
AVG.		.172		72	192	13	46	32	102	4.7	1.5	.9	31	6	5.3	
MAX.			1.838													
NO. OF ACRES		24	Number of samples		10	8	16	10	8	16	6	6	6	3	4	13
LOADING		5.1														
lb./acre/day																

Waste Stabilization Pond

PROJECT : ESSEX (South-West)

Cell Acreage : 12 + 12 + 12

Total Acreage : 36

Commenced Operation : July 1972

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

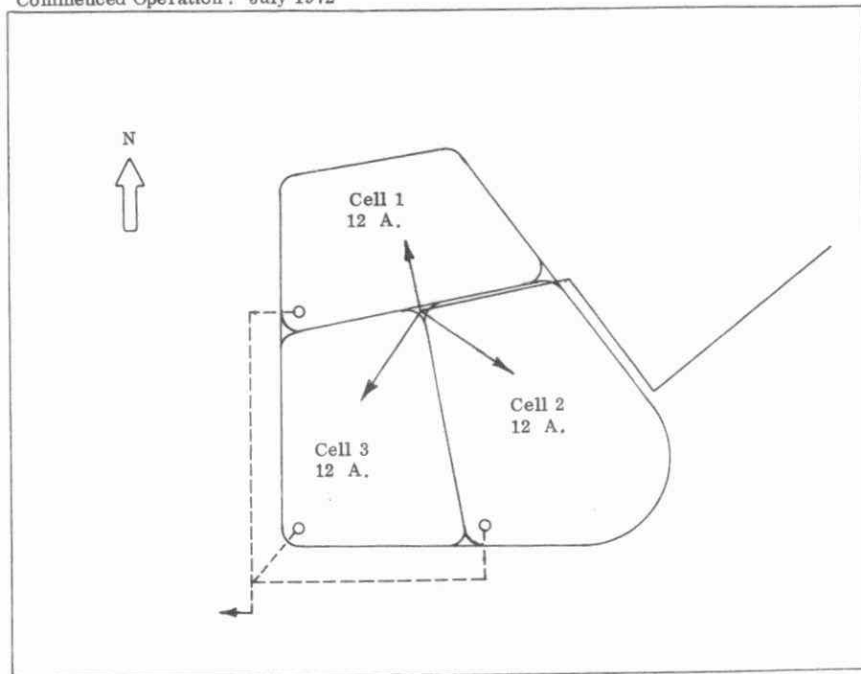
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 1200 l gpm
 Pump 2 : 1200 l gpm

Total Cap : 1200 l gpm



MONTH	FLOWS			BOD			SUSP SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	4.65	.15	.25	118			97								
FEB	12.00	.43	1.97	200			87			3.1					
MAR	17.69	.57	1.04	42		53	37		10						
APR	7.44	.25	N/A			11			53						
MAY	7.89	.25	.90	42	17	7	87	50	53	4.5	.7	.36	19.2	5.6	5.6
JUN	7.17	.24	.52												
JUL	6.51	.21	.48	80	15	24	49	46	180						
AUG	8.14	.26	.63	77	18	12	58	52	19	5.5	.7	1.3	19.8	3.1	5.1
SEP	9.09	.30	.63												
OCT	6.89	.22	.58	38	21	13	67	36	29	3.5	1.6	.75	11.5	3.2	3.1
NOV	7.28	.24	.47	92		17	93		23	7.0		.9	26.2		3.5
DEC	17.78	.57	1.38												
TOTAL	112.54														
AVG.		.30		85	17	12	70	47	45	4.8	.9	.59	19.1	3.7	4.5
MAX.			1.97												
NO. OF ACRES	36	Number of samples		9	10	28	9	10	28	6	7	23	4	4	23
LOADING (lb./acre/day)	7.08														

Waste Stabilization Pond

PROJECT : EXETER

Cell Acreage : 11 + 11 + 22 + 22
 Total Acreage : 66

Commenced Operation (Cell 1 + Cell 2) : Dec. 1963
 Expansion (Cell 3 + Cell 4) : 1976

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

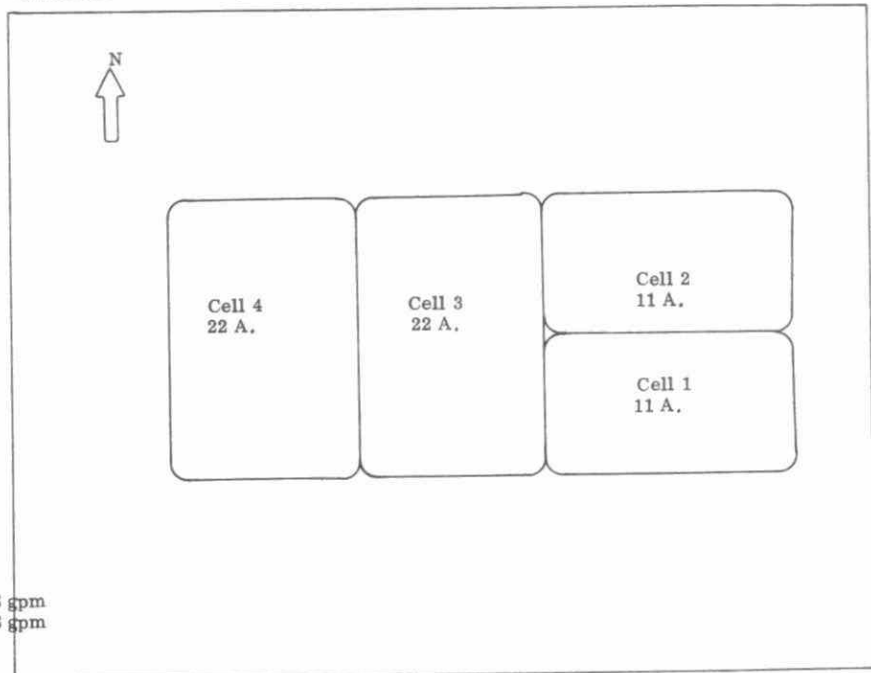
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

(a) (b)
 Pump 1 : 1000 US gpm 665 US gpm
 Pump 2 : 1000 US gpm 665 US gpm
 Total Cap : N/A



Significant Industries : Canadian Cannery

MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN				94			95								
FEB															
MAR				38		12	42		19						
APR				44			33								
MAY				56			57			4.0			32		
JUN															
JUL				73			64			4.0			32.2		
AUG															
SEP				50		5	56		8	2.8		1.6	21.5		4.8
OCT				138		8	86		16	4.2		1.2	34.6		2.9
NOV				115		9	120		161	4.1		.9	11.2		2.8
DEC				36			52			3.0			26.2		
TOTAL															
AVG.				77		9	70		39	3.8		1.2	26.1		3.3
MAX.															
NO. OF ACRES	66	Number of samples		13		6	13		6	9		4	9		4
LOADING lb/acre/day															

Waste Stabilization Pond

PROJECT : GLENCOE

Cell Acreage : 14.0 + 14.0

Total Acreage : 28.0

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal: YES

- Batch
- Continuous
- None

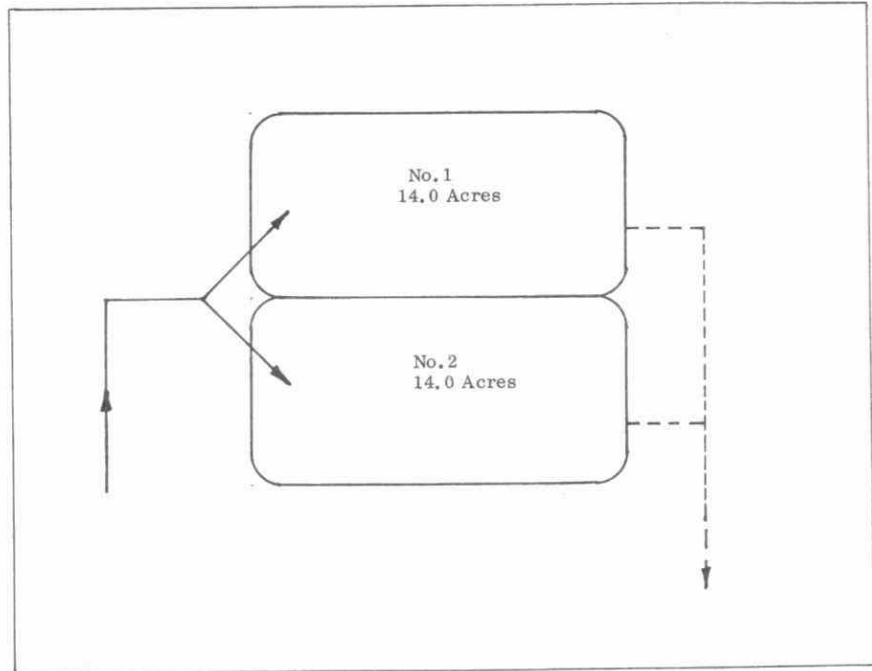
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 486 Igpm
Pump 2 : 486 Igpm

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mjl Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	1.10	.035	.057												
FEB	1.56	.056	.189	475	68		1333	23							
MAR	2.94	.095	.191												
APR	2.05	.068	.131	44	36		68	103		3.0	1.8		22	9.9	
MAY	1.31	.042	.085												
JUN	1.32	.044	.071	210	64		72	105		7.8	2.8		45	14.4	
JUL	1.49	.048	.122	175	17		132	32							
AUG	1.46	.047	.076	200	42		74	109			2.6			12.9	
SEP	2.46	.082	.240												
OCT	2.54	.082	.316	52			44								
NOV	2.41	.080	.160	122	11		128	54		8.3	1.6		38	5.8	
DEC	3.28	.106	.258												
TOTAL	23.92														
AVG.		.066		200	40		361	75		5.5	2.1		32	10.2	
MAX.			.316												
NO. OF ACRES	28	Number of samples		9	11		9	11		4	7		4	7	
LOADING lb/acre/day	5.9														

Waste Stabilization Pond

PROJECT : HARROW

437

Cell Acreage : 15.0 + 15.0 + 15.0

Total Acreage : 45.0

Operation :

- Series
- Parallel
- Other : Series-parallel

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal: YES

- Batch
- Continuous
- None

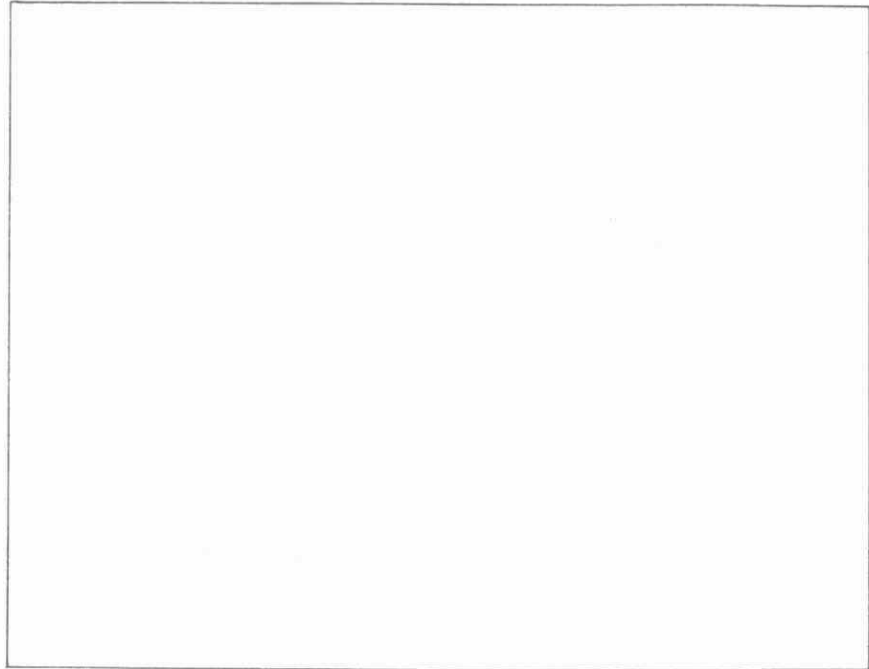
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 :
Pump 2 :

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	3.67	.12	.16	126	15		162	14							
FEB	4.21	.15	.31	104	28		159	31							
MAR	5.76	.19	.31	82	6	2	140	11		1.5	1.83		8.9	16.2	
APR	5.25	.17	.28	92	10	2	310	24		6.5	1.1	.009	28.5	6.2	.29
MAY	5.08	.16	.22	190	3		460	12		8.0	.7		50.5	2.4	
JUN	3.76	.13	.23	220	5		634	11		15.5	1.0		66.5	2.1	
JUL	3.60	.12	.20	78	5.3		110	16		7.7	.9		38.2	3.1	
AUG	4.05	.13	.22	150	3.9		235	4.4		9.3	1.2		50.	2.3	
SEP	5.36	.18	.42	155	6		237	19		10.5	1.5		77.5	3.1	
OCT	5.16	.17	.39	1100	3		4356	4		46.0	1.1		194.0	1.6	
NOV	5.04	.17	.33		1			6							
DEC	6.03	.19	.42	280	4		364	9		13.0	1.2		72.0	4.2	
TOTAL	56.97														
AVG.		.15		234	7	2	652	13		14.6	1.1	1.4	72.2	3.6	12.1
MAX.			.42												
NO. OF ACRES	45	Number of samples		11	41	2	11	41		8	28	4	8	29	4
LOADING lb/acre/day	7.8														

Waste Stabilization Pond

PROJECT : HENSALL

Cell Acreage : 12.05 + 12.68 + 12.15

Total Acreage : 36.88

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

Flow Measurement :

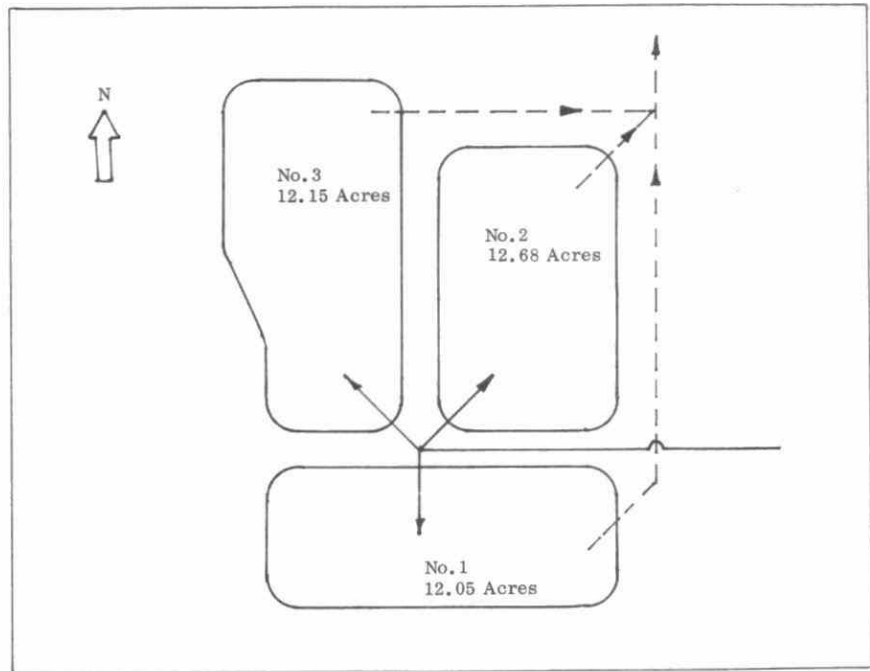
- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 335 Igpm

Pump 2 : 335 Igpm

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	.73	.023	.028												
FEB	.80	.028	.054												
MAR	1.94	.062	N/A												
APR	1.11	.036	.047												
MAY	1.19	.038	.055												
JUN	1.22	.040	.055												
JUL	1.33	.042	.069												
AUG	1.45	.046	.064												
SEP	1.79	.059	.126												
OCT	2.00	.064	.098												
NOV	2.03	.067	.100												
DEC	2.38	.076	.106												
TOTAL	17.97														
AVG.		.049													
MAX.			.126												
NO. OF ACRES	36.88	Number of samples													

LOADING
15 Acres/Day

Waste Stabilization Pond

PROJECT : LUCAN

936

Cell Acreage : 5 + 5
 Total Acreage : 10

Commenced Operation (Cell 1) : 1964
 Expansion (Cell 2) : 1972

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

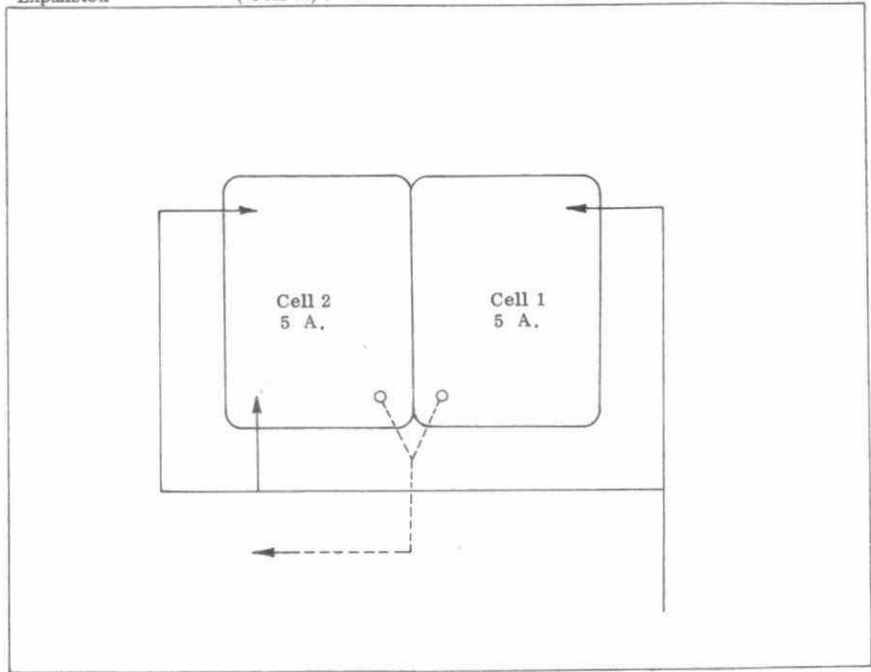
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 300 I gpm
 Pump 2 : 300 I gpm

Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	3.24	.104	.131												
FEB	4.31	.154	N/A												
MAR	13.11	.423	.864												
APR	7.86	.253	.851												
MAY	3.45	.111	.169												
JUN	3.87	.129	.212												
JUL	4.76	.153	.520												
AUG	4.88	.157	N/A												
SEP	5.35	.178	.523												
OCT	5.20	.168	.507												
NOV	7.59	.253	.523	118		24	212		19						3.7
DEC	10.28	.331	.835	88		8	82		6	5.5		2.4	49.5		7.8
TOTAL	73.90														
AVG.		.202		103		16	147		12	5.5		2.4	49.5		5.7
MAX.			.869												
NO. OF ACRES	10	Number of samples		2		2	2		2	1		1	1		2
LOADING lb/Acre/Day	21														

Waste Stabilization Pond

PROJECT : MARKDALE

Cell Acreage : 14.0

Total Acreage : 14.0

Commenced Operation : Nov. 1968

Operation :

- Series
- Parallel (SINGLE CELL)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other : Seasonal (Summer)
Continuous (Winter)

Phosphorus Removal:

- Batch
- Continuous
- None

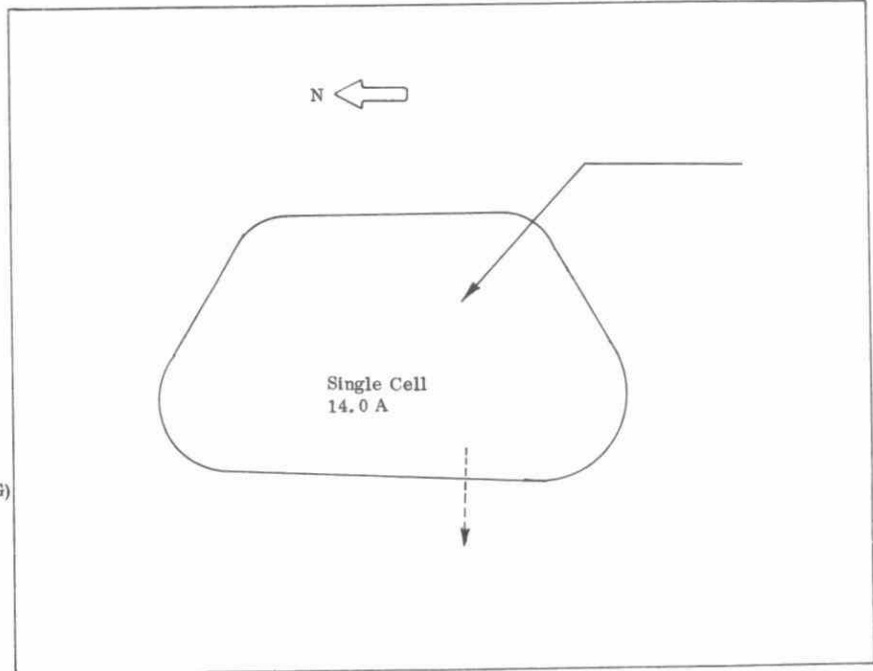
Flow Measurement :

- Flow Meter
- Integrator (NO RECORDING)
- Pump Timer

Pumping Station

Pump 1 :
Pump 2 : (GRAVITY FLOW)

Total Cap :



Significant Industries : Nil

MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	
JAN						12		11								
FEB				64		30	58	14								
MAR				108		34	183	22	6.0		5.1	28.7		20		
APR				86		14	101	11	4.5		2.8	22.0		12		
MAY				180		14	141	25	7.5		1.2	37.8		6.6		
JUN				100	73		172	382	7.5	4.2		41.0	17			
JUL				150	20		261	73	12.0	2.9		37.8	11			
AUG				120	31		203	39	8.8	1.5		38.5	7			
SEP				140	19		90	60	4.3	2.5		20.8	10			
OCT				38	19		44	27	2.9	2.7		29.2	12			
NOV																
DEC																
TOTAL																
AVG.				109	44	17	139	192	21	6.6	3.1	1.8	31.9	13	8.6	
MAX.																
NO. OF ACRES	14	Number of samples			9	7	11	9	7	11	8	7	9	8	7	9
LOADING lb/acre/day																

Waste Stabilization Pond

PROJECT : MERLIN (RALEIGH & TILBURY E.)

Cell Acreage :
 Total Acreage :

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

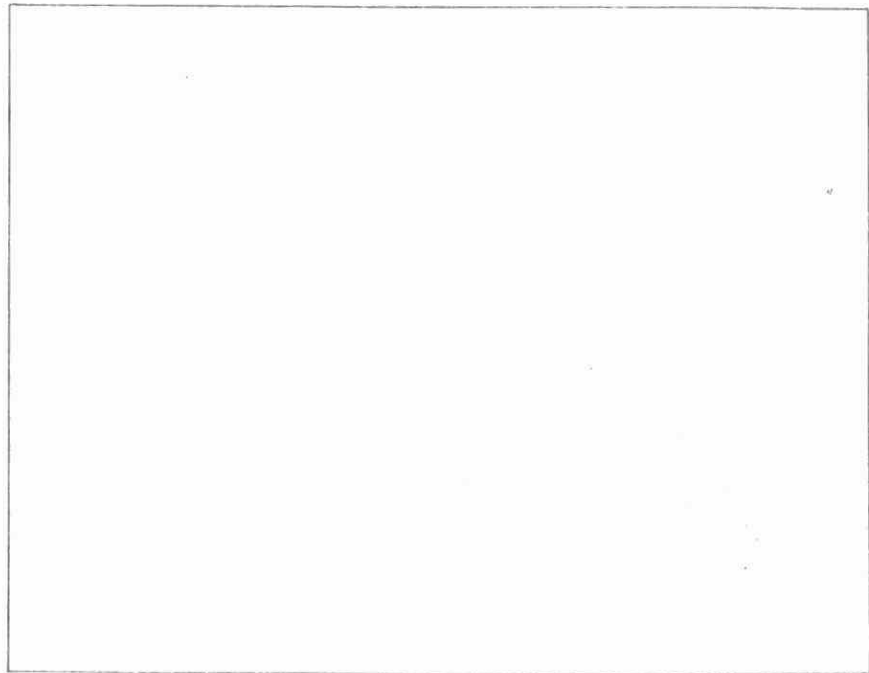
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 :
 Pump 2 :
 Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	.451	.014	.029												
FEB	.523	.018	.034												
MAR	.676	.021	.040												
APR	.748	.024	.059	420	14		352	50							
MAY	.786	.025	.049												
JUN	.654	.021	.037	310	20		409	98		6.0	.5		49.5	2.8	
JUL	.699	.023	.037	68	29		52	64		5.5	.8		47.3	6.5	
AUG	.789	.025	.052	185	20		124	46		6.5	.9		55.0	6.2	
SEP	1.098	.036	.214	510			772			11.5			77.0		
OCT	.917	.029	.045	290	14		384	21		2.4	.2		59.5	2.5	
NOV	.896	.029	.054												
DEC	1.137	.036	.086	144			138			5.8			49.5		
TOTAL	9.374														
AVG.		.025		275	19		318	55		6.2	.6		56.3	4.5	
MAX.			.214												
NO. OF ACRES	27.5	Number of samples		7	5		7	5		6	4		6	4	
LOADING lb./acre/day	2.5														

Waste Stabilization Pond

PROJECT : MILVERTON

Cell Acreage : 15.0
 Total Acreage : 15.0

Commenced Operation : Mar. 1967

Operation :

- Series
- Parallel (SINGLE CELL)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

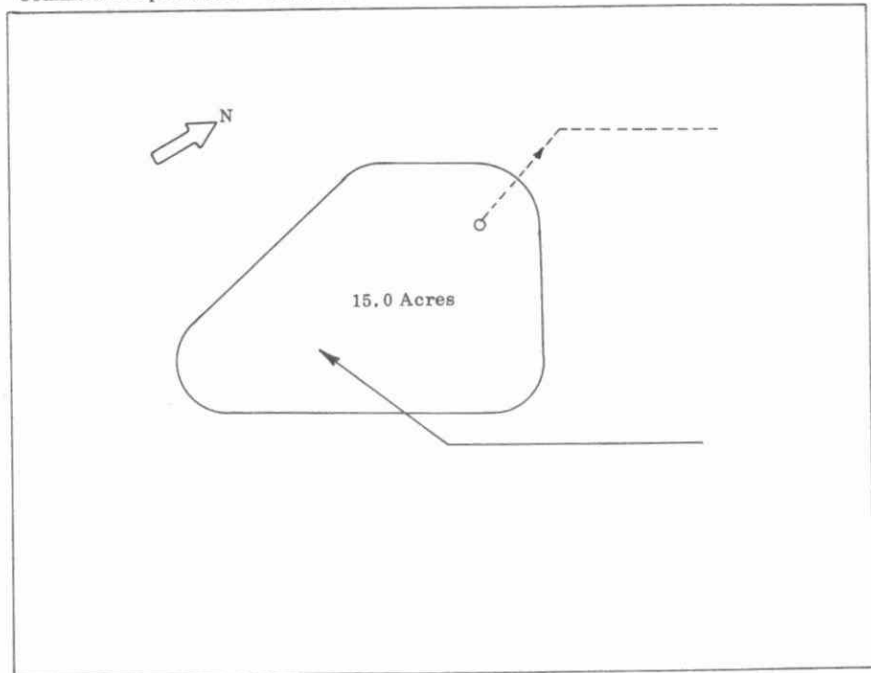
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 367 Igpm
 Pump 2 : 367 Igpm
 Total Cap : N/A



Significant Industries : Glitz Cheese

MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	2.69	.087	.141	1240			352			30.5			63.5		
FEB	3.10	.110	.218												
MAR	8.37	.269	.564	920			743			17.0			35.5		
APR	9.23	.307	.528	71520		116	259		35	26.5		11.0	73.0		30
MAY	5.51	.177	.427	10200		82	1266		71	118		4.9	355		21.9
JUN	3.08	.102	.154												
JUL	3.00	.096	.202	1400			483			15.0			88.5		
AUG	3.15	.101	.169	4945			237			68.2			180.9		
SEP	3.80	.126	.253	126			123			5.5			33.8		
OCT	4.05	.131	.189	147	29		36	45		3.0	8.1		13.0	17.1	
NOV	5.09	.170	.169	34		30	81		55	4.6		4.7	16.5		12.7
DEC	3.37	.108	.356			31			69			1.8			14.0
TOTAL	54.44														
AVG.		.149		7196	29	40	320	45	59	31.0	8.1	4.4	90.2	17.1	14.9
MAX.			.564												
NO. OF ACRES	15	Number of samples		14	2	24	13	2	25	14	2	23	14	2	23
LOADING lb/acre/day	714														

Waste Stabilization Pond

PROJECT : MITCHELL

077

Cell Acreage : 21 + 21 + 25.5

Total Acreage : 67.5

Commenced Operation : Aug. 1961

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal (When Possible)
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

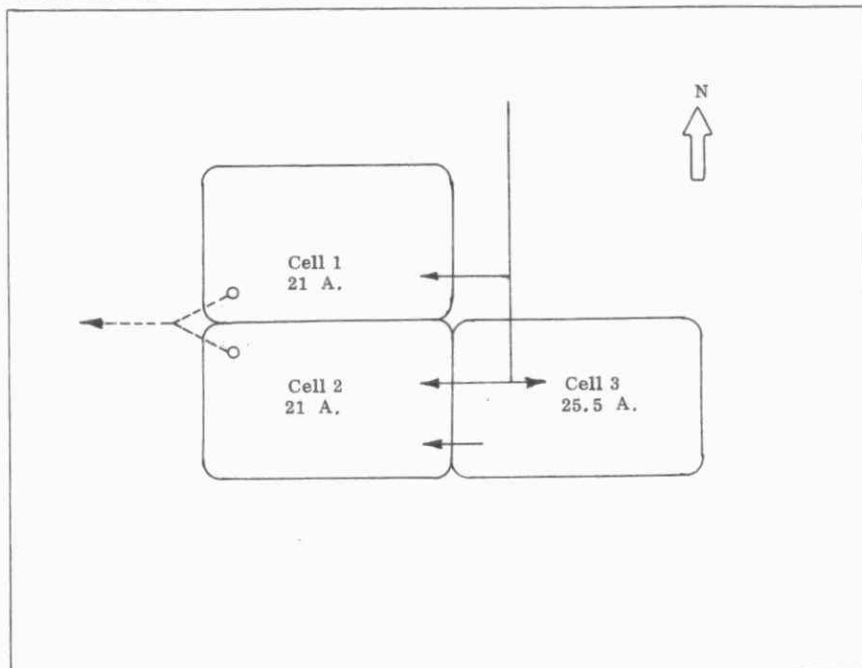
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 875 US gpm
Pump 2 : 875 US gpm

Total Cap : N/A



Significant Industries : Stacey Bros Ltd (Creamery)

MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	16.64	.54													
FEB	14.56	.52													
MAR	37.47	1.21													
APR	20.13	.67													
MAY	14.62	.47				2			12			.9			2.5
JUN	13.46	.45													
JUL	11.03	.36													
AUG	33.01	1.06													
SEP	21.62	.72													
OCT	11.76	.38		345	4	3	244	4	2	5.0	1.6	2.0	15.5	5.1	3.1
NOV	12.62	.42				4			7			2.3			7.2
DEC	N/A	N/A													
TOTAL	226.3	est.													
AVG.				345	4	3	244	4	7	5.0	1.6	1.5	15.5	5.1	3.3
MAX.		.62													
NO. OF ACRES	67.5	Number of samples		1	3	14	1	3	14	1	3	14	1	3	14
LOADING lb/acre/day	31.2														

Waste Stabilization Pond

PROJECT: MITCHELL'S BAY
(DOVER TWP.)

Cell Acreage: 5.0 +5.0

Total Acreage: 10.0

Operation:

- Series
- Parallel
- Other: Series-parallel

Discharge:

- Seasonal
- Continuous
- Annual
- Other: Total Retention

Phosphorus Removal:

- Batch
- Continuous
- None

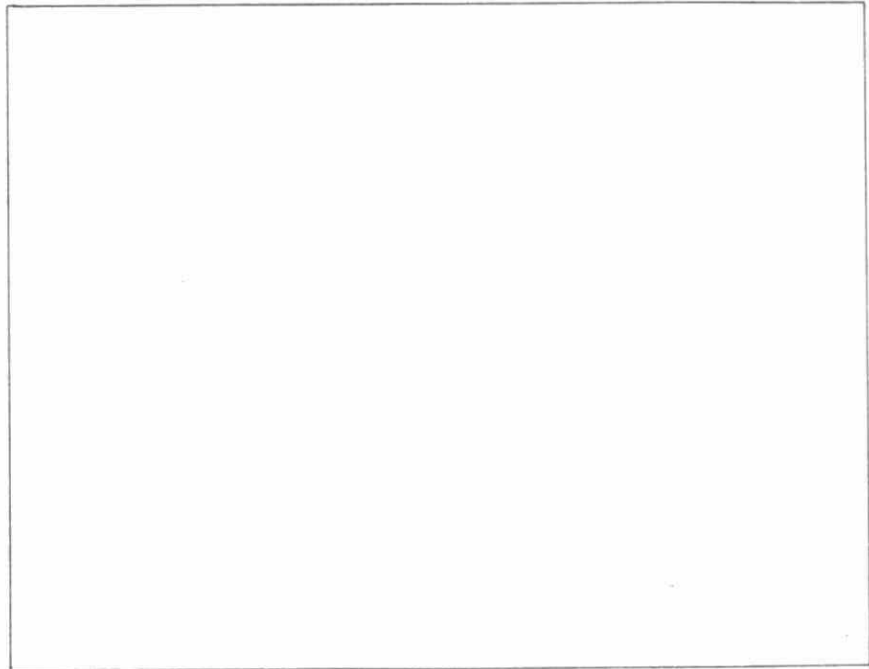
Flow Measurement:

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1:
Pump 2:

Total Cap:



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	.0072	.00023	N/A												
FEB	.0108	.00038	N/A												
MAR	.0420	.00135	N/A												
APR	.0456	.00152	N/A												
MAY	.2940	.00948	N/A												
JUN	.1140	.00380	N/A												
JUL	.1570	.00510	N/A												
AUG	.1800	.00580	N/A												
SEP	.0960	.00320	N/A												
OCT	.0610	.00190	N/A												
NOV	.0230	.00070	N/A												
DEC	.1830	.00590	N/A												
TOTAL	1.213														
AVG.		.0033													
MAX.			N/A												
NO. OF ACRES	10			Number of samples											
	LOADING			Tons/Acre/Day											

T-77

Waste Stabilization Pond

PROJECT : NORWICH

Cell Acreage : 15 + 15
 Total Acreage : 30

Commenced Operation (Cell 1) : May 1974
 Expansion : (Cell 2) : Spring 1976

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

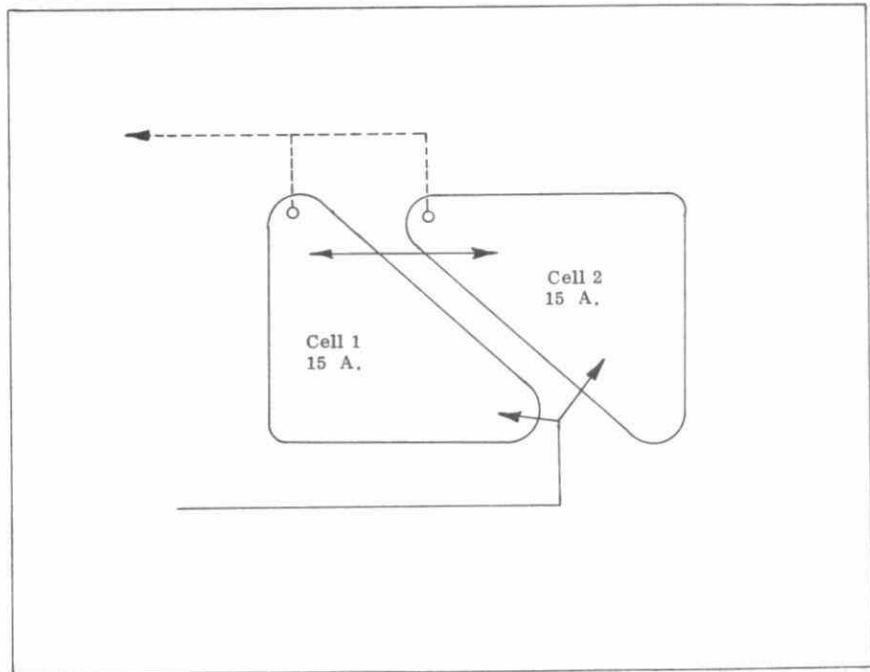
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 800 I gpm
 Pump 2 : 800 I gpm
 Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	.307	.009	.001												
FEB	.358	.012	.003												
MAR	.711	.022	.006												
APR	.502	.016	.004	85	11		109	45		6.5	1.6		68	3.5	
MAY	.333	.010	.001	52	17		68	94		5.5	1.4		44	8.0	
JUN	.292	.009	.001	185	27		215	36		10.5	2.2		43	7.9	
JUL	.270	.009	.010	75	25		120	119		9.0	2.7		70	11.9	
AUG	.295	.009	.001	54	46		47	110		4.8	3.0		41	13.0	
SEP	.507	.169	.005	640	32		605	40		5.5	1.8		47	7.9	
OCT	.479	.015	.004	185	18		625			3.3	1.4		31	6.9	
NOV	.411	.013	.001	48	15		60	56		4.8	1.4		50	7.3	
DEC	.855	.027	.077												
TOTAL	5.320														
AVG.		.014		165	23		231	70		6.2	1.9		49	8.3	
MAX.			.077												
NO. OF ACRES	30	Number of samples			8	8	8	8	8	8	8	8	8	8	8
LOADING lb/acre/day	.77														

Waste Stabilization Pond

PROJECT : PETROLIA

Cell Acreage : 15 + 17
 Total Acreage : 32

Commenced Operation : N/A

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

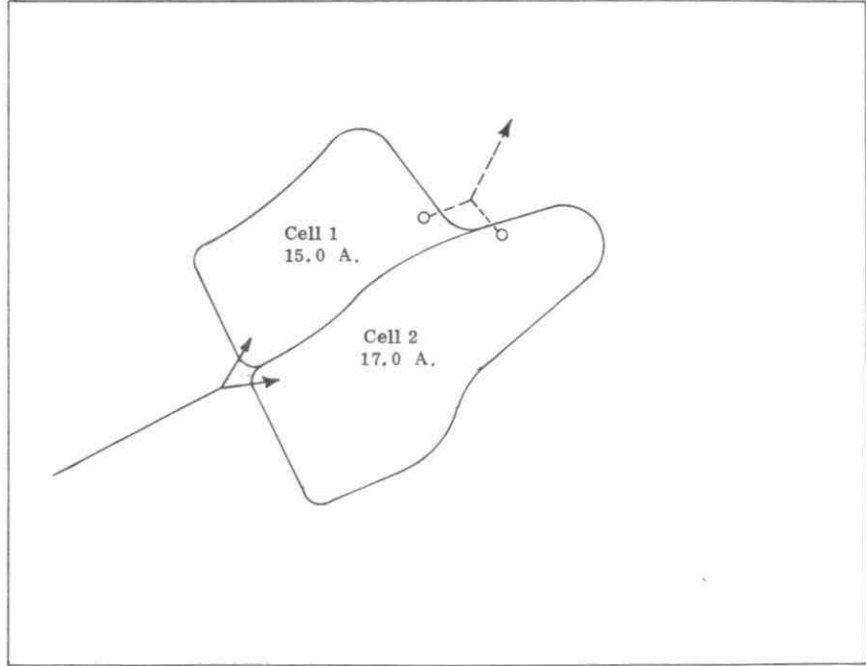
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 260 I gpm
 Pump 2 : 260 I gpm
 Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN															
FEB															
MAR															
APR															
MAY															
JUN															
JUL															
AUG															
SEP															
OCT															
NOV															
DEC															
TOTAL															
AVG.															
MAX.															
NO. OF ACRES	Number of samples														
LOADING	17.0 cr/cdy														

Waste Stabilization Pond

PROJECT : RIDGETOWN

Cell Acreage : 13.5 + 13.0 + 13.0
 Total Acreage : 39.5

Commenced Operation : Sept. 1973

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal :

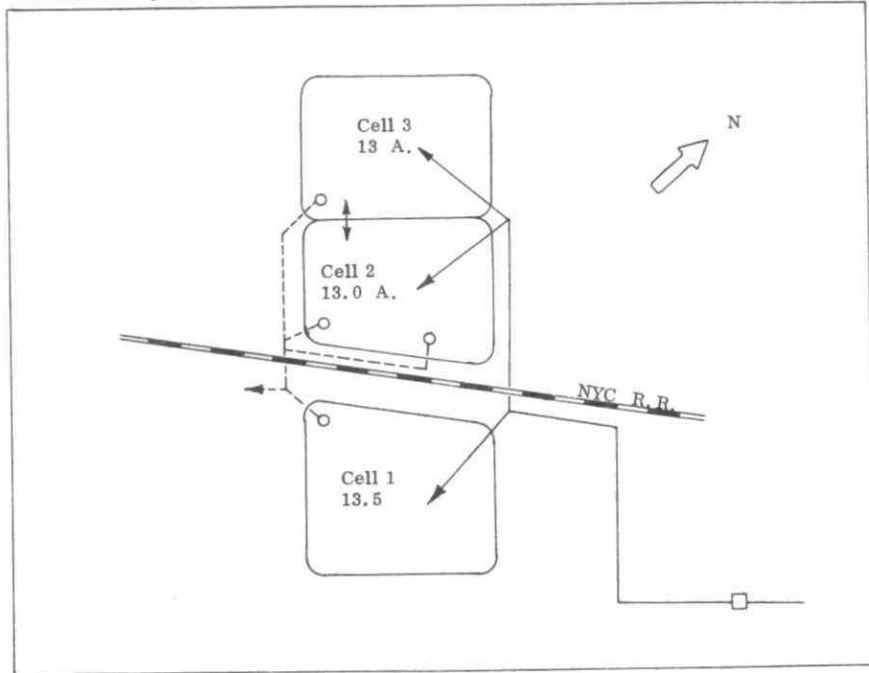
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 875 I gpm
 Pump 2 : 875 I gpm
 Total Cap : 875 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	
	Mil. Gal.	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
JAN	4.16	.13	.29													
FEB	3.76	.13	.40													
MAR	4.99	.16	.23	122	37		92	95		4.8	3.2		26	13		
APR	5.50	.18	.28													
MAY	5.24	.17	.24	155	14.4	2.8	180	48	3	4.0	1.4	.35	75	9.5	4.6	
JUN	4.26	.14	.21	114	39		91	43		6.5	2.1		62	11		
JUL	4.40	.14	.18	200	17		193	96		8.8	2.0		34	8		
AUG	4.27	.14	.20	230	36		2552	112		8.5	2.1		40	9		
SEP	4.32	.14	.28													
OCT	4.98	.16	.36	155	20		132	92		9.3	1.7		34	7		
NOV	4.52	.15	.20	175	8.8	3	195	26	53	14.0	2.4	.28	44	5.4	2.3	
DEC	6.33	.20	.52													
TOTAL	56.73															
AVG.		.155		164	24.5	3	490	73	36	7.4	2.1	.30	45	8.7	3.1	
MAX.			.52													
NO. OF ACRES	39.5	Number of samples			7	19	3	7	19	3	7	19	3	7	19	3
LOADING lb/acre/day	6.2															

LYT

Waste Stabilization Pond

PROJECT : RODNEY

877

Cell Acreage : 16

Total Acreage : 16

Commenced Operation : March 1975

Operation :

- Series
- Parallel (SINGLE CELL)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

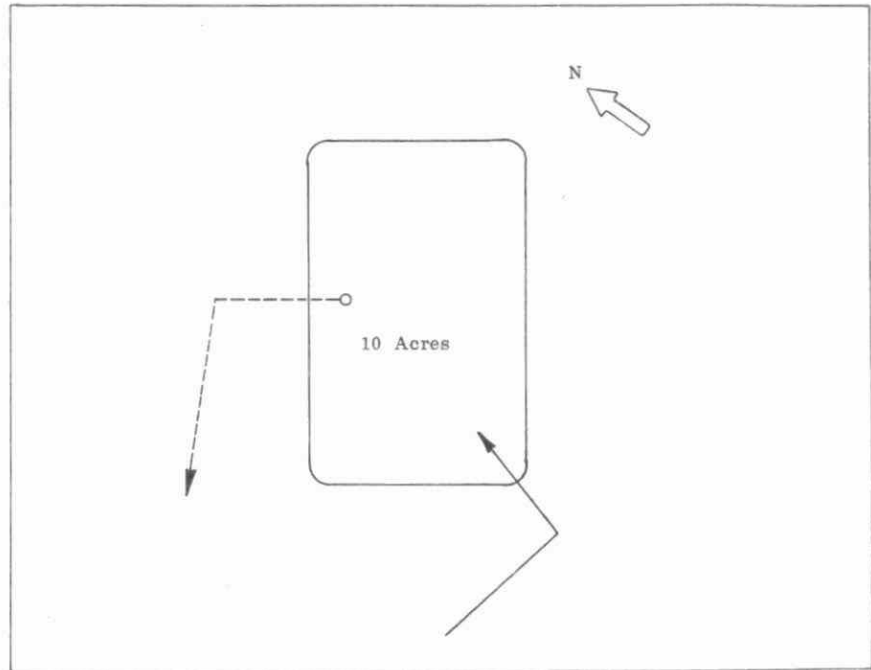
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 520 I gpm
Pump 2 : 520 I gpm

Total Cap : 520 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	1.33	.043	.53	100			151			5			44		
FEB	1.38	.049	.55	310			786			10.8			76.8		
MAR	2.05	.066	.88												
APR	1.99	.066	.90	180	18		250	84		9.3	3.0		73	19.5	
MAY	1.72	.055	.66	185	23		95	88		7.5	2.0		56	9.1	
JUN	1.46	.048	.54												
JUL	1.52	.049	.56	64	32		73	95		6.0	1.8		47.5	7.8	
AUG	1.56	.050	.59	198	50		132	68		9.5	2.8		141.3	12.2	
SEP	1.72	.057	.95	1480	18		728	2		17.5	4.1		128.0	9.0	
OCT	1.98	.064	.73	205	35		137	119		9.0	1.9		65.1	11.1	
NOV	1.85	.062	.68	146		18	88		160	6.1		.97	41.0		8.3
DEC	2.41	.078	1.03												
TOTAL	20.97														
AVG.		.057		293	32	18	287	75	160	8.9	2.9	.97	77.7	11.6	8.3
MAX.			1.03												
NO. OF ACRES	16	Number of samples		12	7	3	12	7	3	12	7	3	12	7	3
LOADING	lb/acre/day			0.4											

Waste Stabilization Pond

PROJECT : SEAFORTH

Cell Acreage : 10.0 + 10.0 + 10.0

Total Acreage : 30.0

Commenced Operation : Nov. 1963

Operation :

- Series
- Parallel
- Other : 1 & 2 parallel series to #3

Discharge :

- Seasonal
- Continuous
- Annual
- Other : Cont. (Winter) Retention (Summer)

Phosphorus Removal:

- Batch
- Continuous
- None

Flow Measurement :

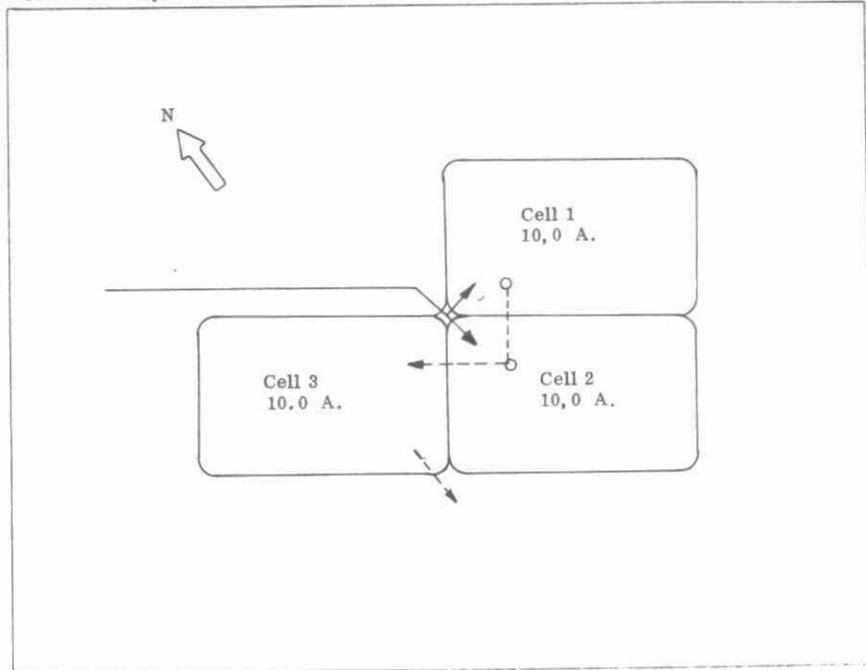
- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 828 US gpm

Pump 2 : 828 US gpm

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil. Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	6.27	.20	.26	112	14	4	97	22	7	6.5		2.2	28.5		7.3
FEB	6.43	.23	.43	124	36	19	90	22	2	7.3		3.3	35.7		11.8
MAR	19.25	.62	1.42	66	29	29	74	31	7	4.8		3.8	17.0		16.7
APR	11.23	.37	.52	89		12	71		31	4.4		2.2	18.2		8.1
MAY	7.66	.25	.38			19			41			.7			4.7
JUN	7.50	.25	.36												
JUL	7.21	.23	.86	79	18		68	38		4.3	1.9		22	8.0	
AUG	7.77	.25	.43	740	14		662	22		31.0	2.6		146	5.7	
SEP	9.37	.31	.62	44	18	5	46	4	5	2.5	2.6	1.0	13	5.7	3.5
OCT	11.77	.38	.85	100		2	87		1	5.3		1.0	26		3.9
NOV	11.99	.40	.74	50	4	3	77	19	7	4.0	2.2	1.1	23	9.7	2.8
DEC	14.00	.45	.83	80	6	2	120	7	7	4.3	1.6	1.3	21	7.2	3.8
TOTAL	120.45														
AVG.		.32		137	18	14	128	27	26	6.9	2.0	1.5	22	7.6	6.5
MAX			1.42												
NO. OF ACRES	30	Number of samples		12	17	21	12	17	21	12	10	21	11	10	21
LOADING lb/acre/day	15														

Waste Stabilization Pond

PROJECT : SOMBRA TWP
(SOMBRA)

Cell Acreage : 12 + 12
Total Acreage : 24

Commenced Operation : Nov. 1975

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

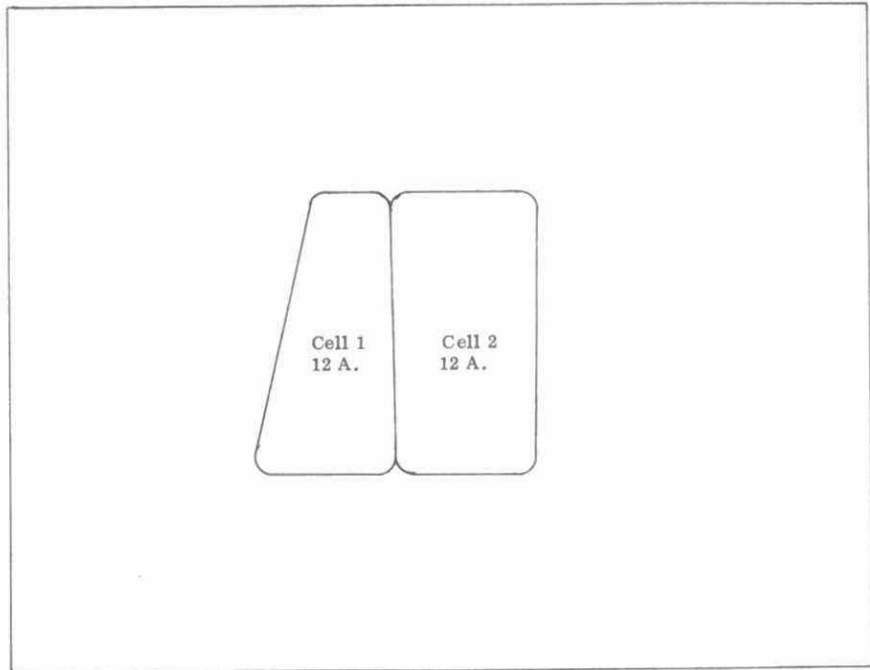
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 500 I gpm
Pump 2 : 500 I gpm
Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	1.100	.033	N/A												
FEB	.901	.032	N/A												
MAR	1.210	.039	N/A												
APR	1.074	.035	N/A												
MAY	1.009	.032	N/A												
JUN	.754	.025	N/A												
JUL	.923	.029	N/A												
AUG	.935	.030	N/A												
SEP	.892	.029	N/A												
OCT	.915	.029	N/A												
NOV	.900	.030	N/A												
DEC	1.186	.038	N/A												
TOTAL	11.799														
AVG.		.032													
MAX.			N/A												
NO. OF ACRES	24			Number of samples											
LOADING lb/acre/day															

Waste Stabilization Pond

PROJECT : WEST LORNE

Cell Acreage : 10 + 10

Total Acreage : 20

Commenced Operation : Nov. 1972

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

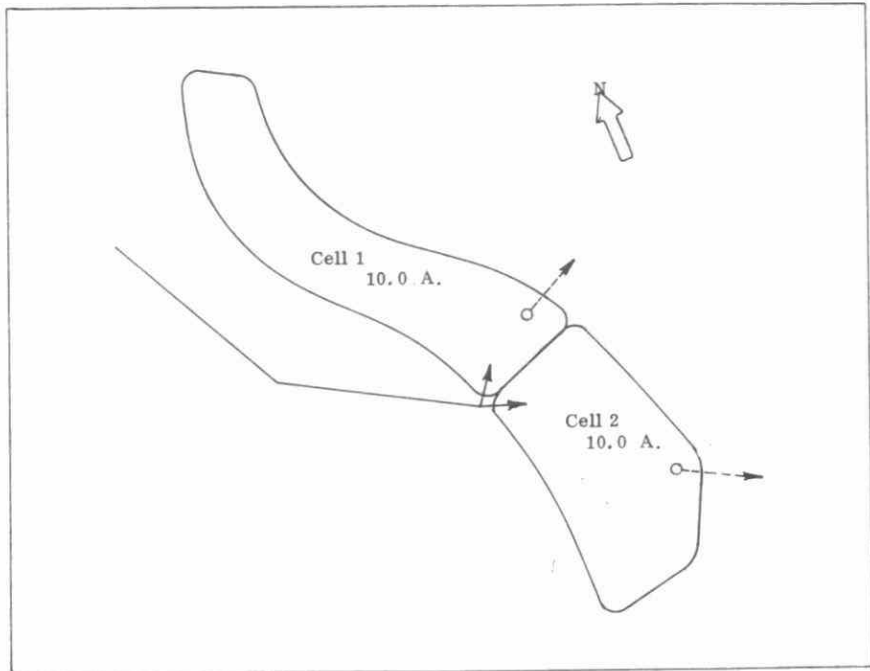
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 467 I gpm
Pump 2 : 467 I gpm

Total Cap : 467 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL 1 CONTENTS mg/l	CELL 2 CONTENTS mg/l	INFLUENT mg/l	CELL 1 CONTENTS mg/l	CELL 2 CONTENTS mg/l	INFLUENT mg/l	CELL 1 CONTENTS mg/l	CELL 2 CONTENTS mg/l	INFLUENT mg/l	CELL 1 CONTENTS mg/l	CELL 2 CONTENTS mg/l
JAN	2.26	.073	.103												
FEB	2.56	.091	.184	720			2343			6.1			57		
MAR	4.28	.138	.218												
APR	4.09	.136	.216	64			97			4.0			35		
MAY	3.09	.100	.152	62	16	6.8	33	65	13	4.3	2.4	1.15	19	10.4	4.35
JUN	2.64	.088	.139	325	7.0	1.3	193	6	7.2	12.5	.7	.09	50	10.5	1.47
JUL	2.84	.092	.140	82	16.4	4.8	62	30	44	5.5	1.3	.5	24	7.9	4.9
AUG	2.54	.081	.122	51	20	6	40	23	17	3.1	1.5	.7	19.6	5.8	6.2
SEP	3.22	.107	.280	84	28	2.0	43	23	1	5.25	2.2	.40	23.8	9.6	1.85
OCT	3.49	.113	.152												
NOV	3.47	.116	.156			2			28			.32			2.2
DEC	4.99	.161	.292												
TOTAL	39.47														
AVG		.108		239	18	5/1.6	577	28	15.9 18.3	5.6	1.6	.69 .19	34	8.3	4.7 1.7
MAX.			.292	1320			4601								
NO. OF ACRES	20	Number of samples		9	6	12/5	9	6	12/5	9	6	12/5	9	6	12/5
LOADING 1/acre/day	12.9														

Waste Stabilization Pond

PROJECT : WINGHAM

Cell Acreage : 15 + 15

Total Acreage : 30.0

Commenced Operation : Nov. 1964

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal :

- Batch
- Continuous
- None

Flow Measurement :

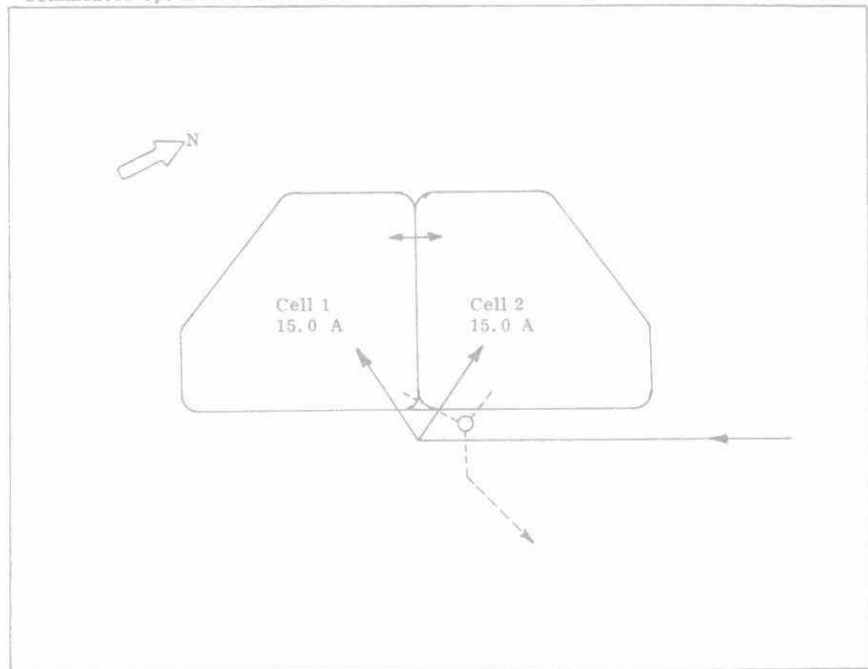
- Flow Meter
- Integrator
- Pump Timer

Pumping Station :

Pump 1 : 900 US gpm

Pump 2 : 900 US gpm

Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	12.14	.39	.45	255	59	20	368	21	19	4.0	3.8	3.5	18.2	19.8	15.8
FEB	11.14	.40	.55	230	74	32	345	18	15	4.5	4.5	3.2	23.2	23.8	17.8
MAR	25.22	.81	1.50	200	66	22	99	22	24	5.8	3.8	3.2	24.7	18.7	18.0
APR	20.69	.69	1.24	66	22	17	53	40	155	2.8	1.5	1.8	22.8	8.6	9.8
MAY	14.07	.45	.80	58	4	4	50	21	7	4.5	1.6	1.5	17.0	6.3	5.3
JUN	11.38	.38	.46	78	25	10	100	47	22	5.3	2.3	2.0	21.0	8.3	5.7
JUL	10.93	.35	.68	116	17	9	163	7	3	12.8	3.0	2.0	38.0	13.5	5.3
AUG	15.13	.49	1.08	70	13	10	60	36	5	5.3	2.2	1.9	28.3	7.7	4.6
SEP	23.21	.77	1.34	98	7	7	108	40	11						
OCT	22.53	.73	1.36	93	6	4	121	9	4	7.0	1.1	1.9	18.2	5.8	7.5
NOV	18.28	.61	1.32	102	3	5	87	2	1	5.3		2.0	24.8		9.5
DEC	21.15	.68	1.29	24	6	6	68	8	7	1.3	5.0	1.4	10.8	11.0	6.2
TOTAL	205.87														
AVG		.56		114	23	11	134	21	21	5.4	2.7	2.2	21.9	11.7	8.0
MAX			1.50												
NO OF ACRES	30	Number of samples		13	13	13	13	13	13	12	11	12	12	11	12
LOADING lb/acre/day	21.2														

455

REGION 2
West Central

Waste Stabilization Pond

PROJECT : ARTHUR

458

Cell Acreage : 4.85 + 4.85 + 7.19 + 11.8

Total Acreage : 28.7

Commenced Operation : (Cell 1 + Cell 2) : 1962
 Expansion : (Cell 3) : 1972
 Expansion : (Cell 4) : Nov 1975

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

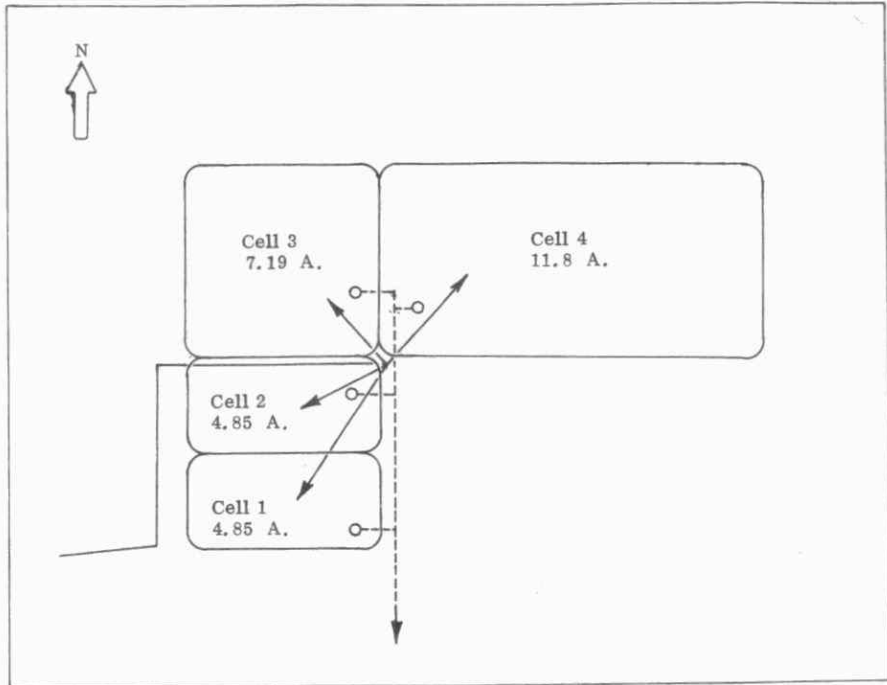
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 600 I gpm
 Pump 2 : 600 I gpm

Total Cap : 900 I gpm (Est.)



Significant Industries : Bell Threads

MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mj/ Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	4.26	.14	.23	180			408			9.0			64		
FEB	5.09	.18	.28	260			162			6.5			60		
MAR	10.14	.33	N/A	80		23	393		32	4.7		2.3	22		17
APR	6.48	.22	N/A	160			222			6.3			31		
MAY	4.50	.14	.18	100		14	71		54	4.2		1.3	45		13
JUN	4.23	.14	.22												
JUL	3.67	.12	.24	135			186			6.0			48		
AUG	6.46	.21	.60	140			64			4.9			37		
SEP	5.90	.20	.40	70			215			5.7			46		
OCT	6.44	.21	.50	120			110			4.1		2.5	35		
NOV	5.39	.18	.27	280			70			6.4		1.4	32		
DEC	5.46	.18	.34	60			65			3.8			34		
TOTAL	68.02														
AVG.		.19	.60	144		16	179		49	5.6		1.8	15		14
MAX.															
NO. OF ACRES	29.5	Number of samples		11		17	11		17	11		29	11		17
LOADING lb/acre/day	9														

Waste Stabilization Pond

PROJECT : HARRISTON

Cell Acreage : 10 + 10 + 8
 Total Acreage : 28

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

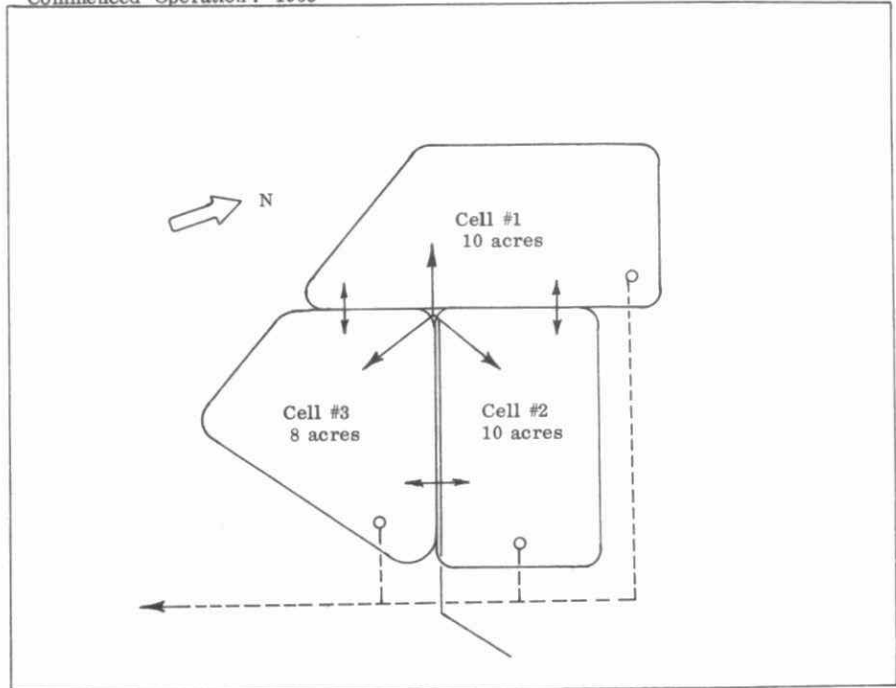
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 480 US gpm
 Pump 2 : 480 US gpm
 Total Cap : 960 US gpm

Commenced Operation : 1965



Significant Industries : Canada Packers

MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	8.84	.29	.67	305			373			12.6			44		
FEB	10.02	.36	.70	168			270			14.0			34		
MAR	24.96	.81	1.40			20			16			5.4			
APR	14.21	.47	.92	63		19	226		32	9.3		4.7	29		17
MAY	7.51	.24	.39	114			236			9.8			34		15
JUN	4.10	.14	.37												
JUL	6.61	.21	.32												
AUG	6.77	.22	.33												
SEP	10.19	.34	1.40												
OCT	14.53	.47	1.09	67			99			6.5			99		
NOV	9.92	.33	.88												
DEC	11.24	.36	.64												
TOTAL	128.90														
AVG.		.35		124		19	229		28	9.9		4.9	47		16
MAX.			1.40												
NO. OF ACRES	28	Number of samples		15		8	15		8	15		8	15		8
LOADING 1/2000	16														

Waste Stabilization Pond

PROJECT : NORFOLK TWP
(PORT ROWAN)

Cell Acreage : 10 + 10

Total Acreage : 20

Commenced Operation: Dec. 1972

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

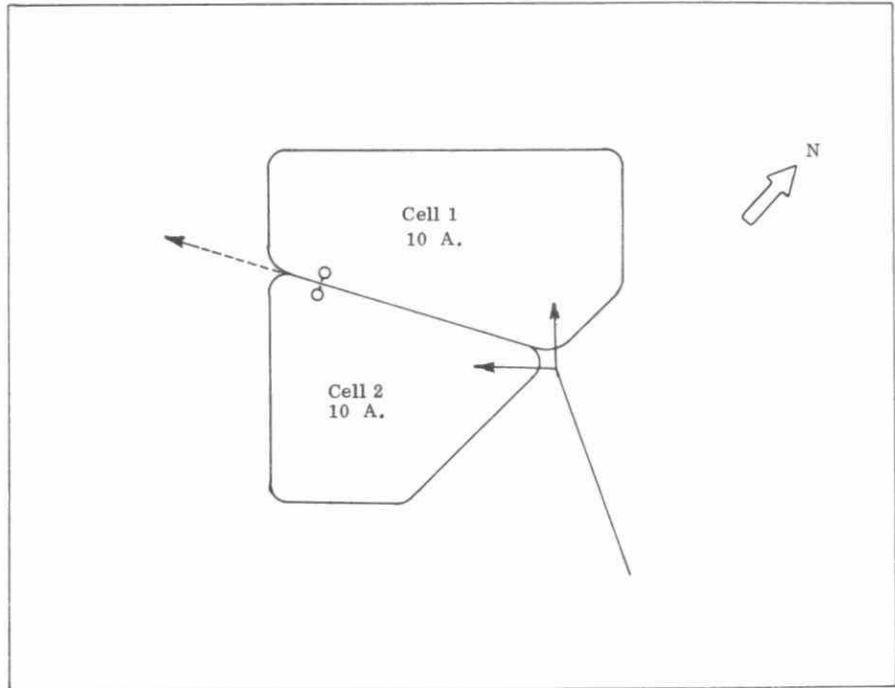
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 312 I gpm
Pump 2 : 312 I gpm

Total Cap : 600 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	
JAN	1.32	.04	.05													
FEB	1.34	.05	.07													
MAR	1.74	.06	.10													
APR	1.58	.05	.09			19		76			1.5			9		
MAY	1.30	.04	.05	160	6				12.0	.8		43	10			
JUN	1.26	.04	.05	300	22		240	27	8.9	1.4		34	9			
JUL	1.43	.05	.07													
AUG	1.53	.05	.07													
SEP	1.76	.06	.17	120	17		110	10	4.5	4.4		19	91			
OCT	1.57	.05	.08													
NOV	1.38	.05	.06	130	7		75	9	2.9	5.0		2	41			
DEC	1.82	.06	.14													
TOTAL	18.03															
AVG.		.05		178	13	19	142	15	7.1	2.9	1.5	25	17	9		
MAX.			.17													
NO. OF ACRES	20	Number of samples			4	4	12	3	3	12	4	4	12	4	4	12
LOADING lb/acre/day	4															

Waste Stabilization Pond

PROJECT : SHELBURNE

Cell Acreage : 6.58 + 6.58

Total Acreage : 13.16

Commenced Operation : 1963

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

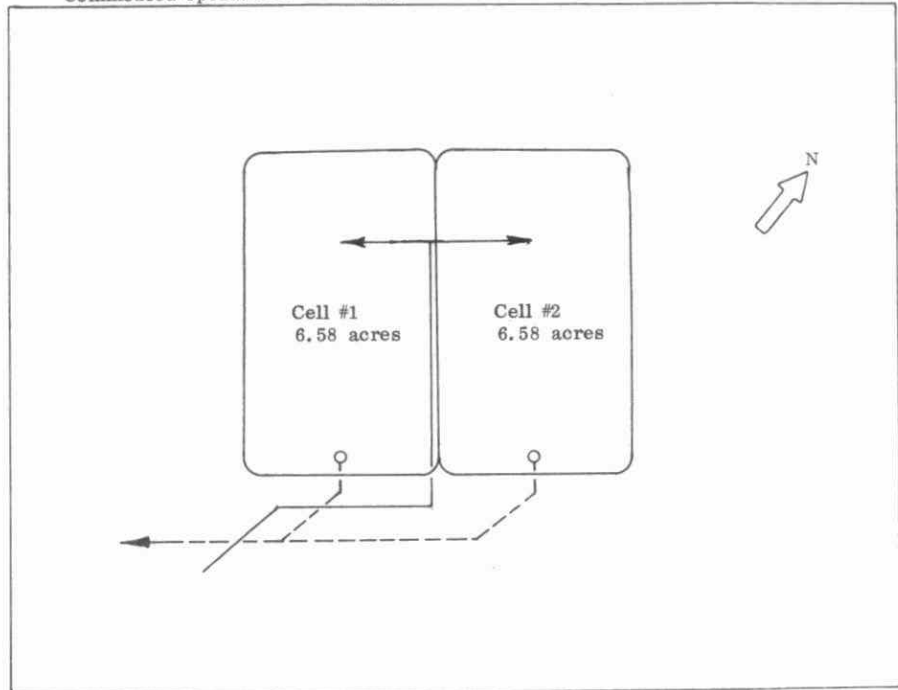
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : N/A
 Pump 2 : N/A
 Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	5.41	.17	N/A	205		56	1292		33	14.0		5.8	62		27
FEB	4.88	.17	N/A	280		100	146		52	8.2		7.2	37		36
MAR	12.17	.39	N/A	158		46	117		45	4.2		4.7	19		25
APR	13.10	.44	N/A	80		32	101		62	5.5		3.7	46		18
MAY	6.60	.21	N/A	175		30	173		65	9.1		3.6	54		21
JUN	5.94	.20	N/A	180		60	127		81	6.0		6.1	29		29
JUL	5.95	.19	N/A	180		48	392		45	11.0		5.8	36		26
AUG	11.34	.37	N/A	22		26	41		67	1.8		5.1	17		25
SEP	12.46	.42	N/A	52		32	45		170	3.2		2.1	14		18
OCT	13.13	.42	N/A	115		16	108		53	6.3		1.5	23		8
NOV	10.99	.37	N/A	120		8	135		31	8.0		2.4	25		10
DEC	13.47	.43	N/A	95		9	120		23	6.3		3.1	50		14
TOTAL	115.44														
AVG.		.32		142		38	261		57	7.1		4.2	35		21
MAX.			N/A												
NO. OF ACRES	13.2	Number of samples		18		18	18		18	18		18	18		18
LOADING lb/acre/day	33														

Waste Stabilization Pond

PROJECT : TWP WILMOT
(NEW HAMBURG)

Cell Acreage : 14 + 13.4

Total Acreage : 27.4

Commenced Operation (Cell 1) : July 1962
Expansion (Cell 2) : Sept 1969

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

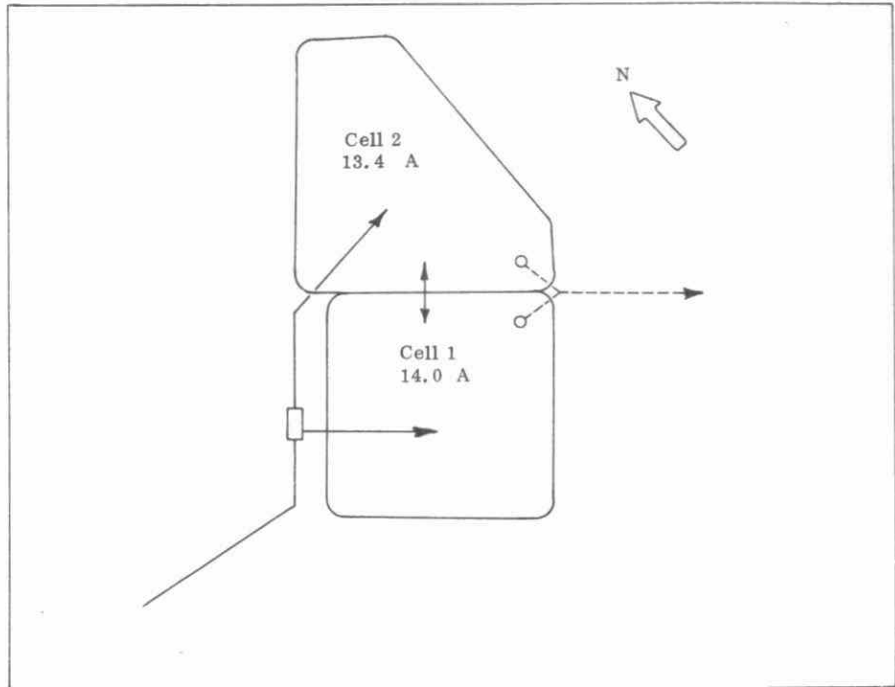
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 600 I gpm
Pump 2 : 600 I gpm

Total Cap : N/A



Significant Industries : Hahn Brass, Klassen Bronz, Oak Grove Creamery, Co-op Hatchery
Ontario Drive and Gear, Felt Boot.

MONTH	FLOWS			BOD			SUSP SOLIDS			T PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	
JAN	5.35	.17	.20	114			710			8.8			48			
FEB	5.55	.20	.29	488			1106			10.4			71			
MAR	9.79	.32	.86	70			106			5.1			36			
APR	7.79	.26	1.05	95	22	9	171	23	18	7.0	6.3	.9	48	34	19	
MAY	7.39	.24	.24	163		11	197		24	9.5		.6	47		18	
JUN	7.10	.24	.37	230			303			10.1			64			
JUL	6.25	.20	.25	122	24		225	47		7.9	5.1		48	16		
AUG	6.60	.21	.35	175			374			18.2			59			
SEP	6.05	.20	.74	113	18		252	47		8.5	5.5		60	18		
OCT	6.60	.21	.80	139		11	356		28	8.9		1.9	51		19	
NOV	5.29	.18	.43	165			303			7.9			43			
DEC	7.20	.23	.62	72			153			7.2			44			
TOTAL	80.96															
AVG.		.22		158	22	10	374	35	23	9.4	5.8	1.1	52	26	19	
MAX.			1.05													
NO. OF ACRES	27.4	Number of samples			41	4	34	41	4	34	41	4	34	39	4	34
LOADING lb/acre/day	13															

REGION 3
Central

Waste Stabilization Pond

PROJECT : BRACEBRIDGE

Cell Acreage : 16 + 16

Total Acreage : 32

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

Flow Measurement :

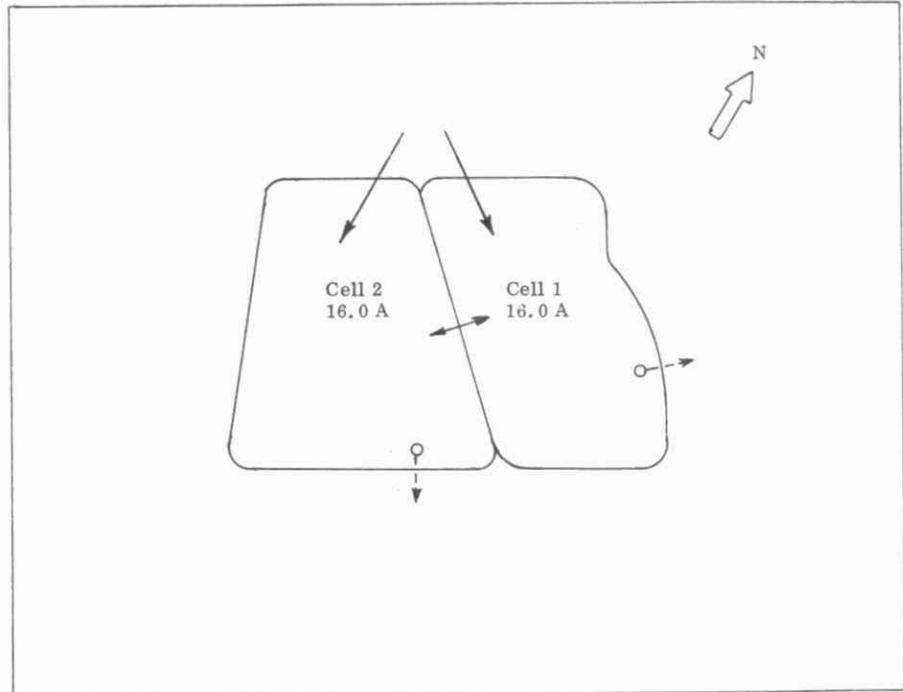
- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 :

Pump 2 :

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL					
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT			
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l			
JAN	7.29	.24	.31	180	10		166	20		10.0	4.1		46	20				
FEB	6.89	.25	.40	160	35		163	41		9.6	4.8		34	20				
MAR	23.16	.75	1.96	85	8		97	15		7.6	1.5		39	9				
APR	19.43	.65	1.42	74	10	7	82	25	18	4.3	1.2	1.4	20	12	6			
MAY	10.63	.34	.53	188	12		119	44		8.5	1.3		32	11				
JUN	8.62	.29	.49															
JUL	9.07	.29	.76	170	60		114	104		7.0	4.5		30	20				
AUG	9.83	.32	.62	90	26		106	59		4.6	3.6		34	11				
SEP	9.96	.33	.76	200	13	3	250	40	10	9.9	1.7		61	8				
OCT	14.26	.46	1.02	135	6	2	155	15	5	8.5	.9	.1	31	7	6			
NOV	14.27	.48	1.02	20	4	5	20	11	11	2.0	.2	.1	6	5	4			
DEC	11.87	.38	1.07	130	11	4	180	16	14	5.8	1.4	.2	41	13	4			
TOTAL	145.38																	
AVG.		.40		131	15	3	129	35	10	7.1	1.8	.4	33	10	7			
MAX.			1.956															
NO. OF ACRES	32			Number of samples			14	36	18	14	34	13	14	46	9	14	53	9
LOADING lb/acre/day	16																	

Waste Stabilization Pond

PROJECT : ELMVALE

Cell Acreage : 4.4 + 9.6 = 14.0

Total Acreage : 14.0

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

Flow Measurement :

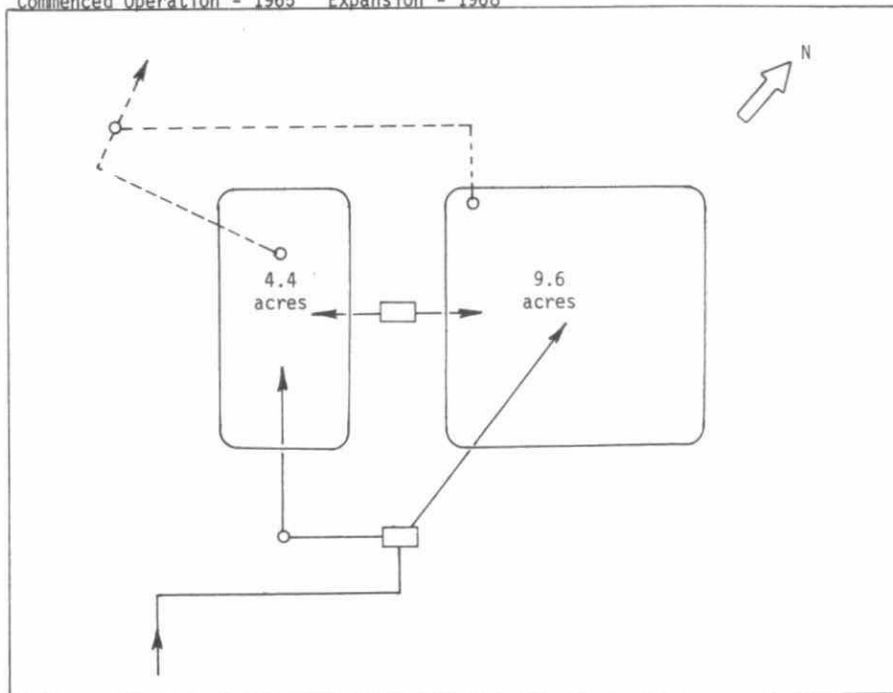
- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 240 Igpm
Pump 2 : 240 Igpm

Total Cap :

Commenced Operation - 1965 Expansion - 1968



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	4.08	.131	.201												
FEB	3.70	.132	.158												
MAR	11.97	.386	.691												
APR	6.52	.217	.331												
MAY	4.51	.145	.201												
JUN	4.00	.129	.201												
JUL	3.95	.127	.216												
AUG	4.54	.146	.273												
SEP	5.00	.167	.691												
OCT	6.87	.222	.691												
NOV	8.80	.293	.648												
DEC	9.03	.291	.691												
TOTAL	72.97														
AVG.		.200	.691												
MAX.															
NO. OF ACRES	14.74	Number of samples													
LOADING lb/acre/day															

Waste Stabilization Pond

PROJECT : LAKEFIELD

Cell Acreage : 18.0 + 6.0

Total Acreage : 24.0

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

Flow Measurement :

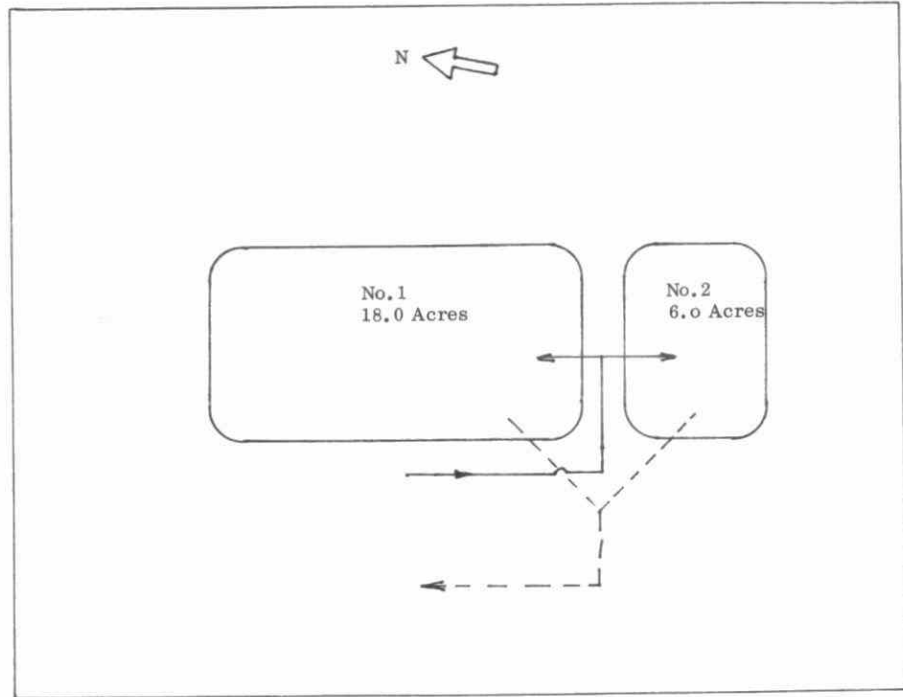
- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 760 Igpm

Pump 2 : 760 Igpm

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	5.00	.161	.275												
FEB	6.44	.208	.375												
MAR	12.01	.387	.775	75			108			4.5			16		
APR	9.36	.312	.543	83	12	9	67	24	17	3.8	2.3	1.1	26	16	10
MAY	7.21	.233	.342	140	17	16	183	60	34	5.2	1.5	0.8	31	11	7
JUN	6.24	.208	.313												
JUL	5.94	.192	.311												
AUG	6.01	.194	.366	80			175								
SEP	6.67	.222	.524	135			163								
OCT	9.24	.298	.427	83	7		120	11		5.9	1.9		38	12	
NOV	7.65	N/A	N/A	120		5	110		9	5.2		.8	32		13
DEC	9.64	.311	.473												
TOTAL	91.41														
AVG.		.250		107	13	10	135	37	20	5.0	1.8	.9	30	12	10
MAX.			.775												
NO. OF ACRES	24	Number of samples		15	22	14	15	22	14	13	21	14	13	21	14
LOADING lb/acre/day	11														

Waste Stabilization Pond

PROJECT : OMEMEE

472

Cell Acreage : 9.0 + 9.0

Total Acreage : 18.0

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

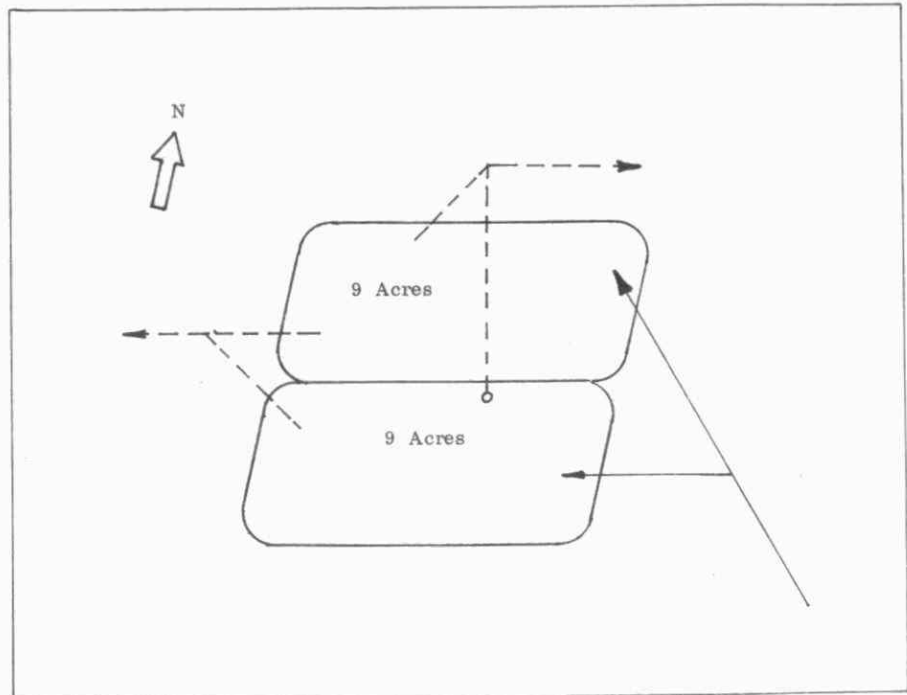
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 :
Pump 2 :

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	.70	.023	.026	130			147			12.0			83		
FEB	.67	.024	.033												
MAR	1.89	.061	.131	100			254			8.4			53		
APR	1.46	.049	.114	60	19		95	27		4.8	1.5		41	6.0	
MAY	.98	.032	.048	90	5		161	12		7.5	.9		56	2.6	
JUN	.74	.024	.033												
JUL	.72	.023	.033	110	1		74	5		6.2	.4		52	1.6	
AUG	1.00	.032	.048	222	2		391	5		10.5	.6		52	2.0	
SEP	1.00	.033	.044	260	8		470	45		13.0	2.5		75	9.5	
OCT	1.23	.040	.062	50	1		90	5		5.3	2.7		50	5.8	
NOV	1.31	.044	.062	90	5		162	15		6.0	2.9		50	7.0	
DEC	1.66	.054	.099												
TOTAL	13.35														
AVG.		.037		129	5		218	15		8.3	1.4		56	4.3	
MAX.			.131												
NO. OF ACRES	18	Number of samples		11	9		11	9		11	9		11	9	
LOADING lb/acre/day	2.6														

REGION 4
Southeastern

Waste Stabilization Pond

PROJECT : ALEXANDRIA

4/7

Cell Acreage : 13.6 + 12.8 + 16.0

Total Acreage : 42.4

Commenced Operation : N/A

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

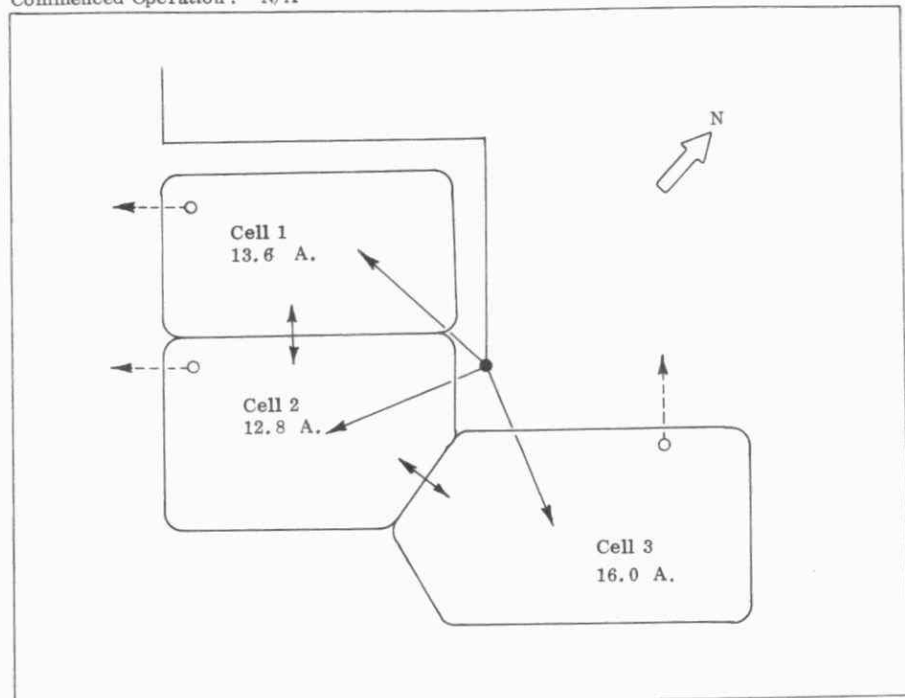
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 800 I gpm
Pump 2 : 850 I gpm

Total Cap : 1590 I gpm



Significant Industries : Consolidated Textiles

MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	37.16	1.20	1.49	200			80			18			29		
FEB	35.16	1.26	2.51												
MAR	42.32	1.37	1.67												
APR	N/A	N/A	N/A												
MAY	N/A	N/A	N/A			30			50			7.6			6.3
JUN	30.30	1.28	N/A												
JUL	38.78	1.25	N/A												
AUG	38.66	1.25	N/A												
SEP	42.39	1.41	N/A												
OCT	N/A	N/A	N/A												
NOV	N/A	N/A	N/A												
DEC	N/A	N/A	N/A												
TOTAL															
AVG.		1.25		200		30	80		50	18		7.6	29		6.3
MAX.			2.51												
NO. OF ACRES	42.4	Number of samples		1		1	1		1	1		1	1		1
LOADING lb/acre/day	59														

Waste Stabilization Pond

PROJECT : ALFRED

Cell Acreage : 22.1 + 22.1

Total Acreage : 44.2

Commenced Operation : Nov. 1975

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

Flow Measurement :

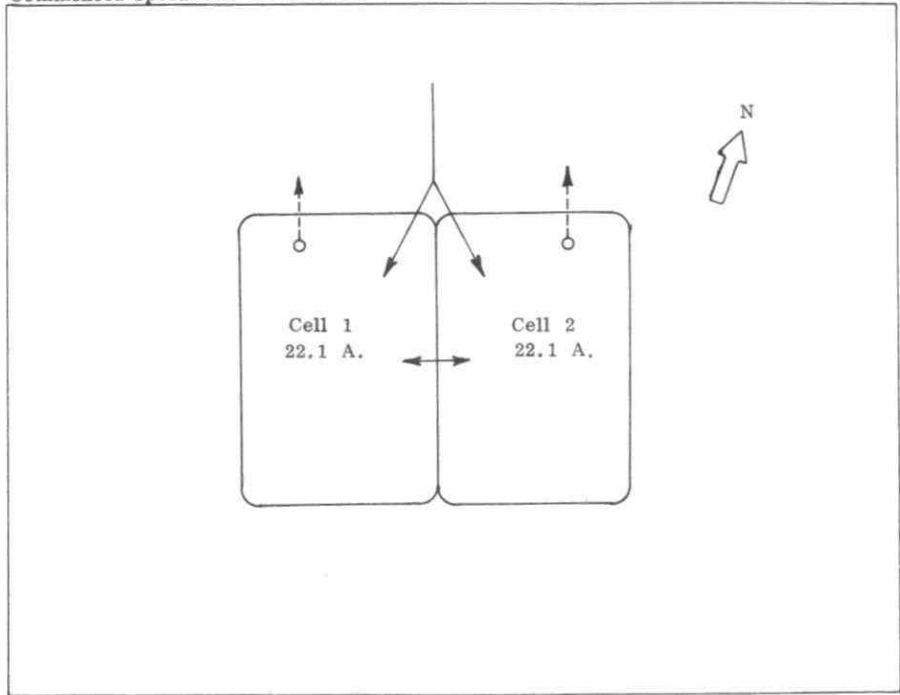
- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 437 I gpm

Pump 2 : 437 I gpm

Total Cap : 699 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	1.93	.06	.11	225			407			15.5			89		
FEB	2.38	.09	.12	180			300			12.0			65		
MAR	3.90	.13	.20	135			120			7.7			15		
APR	3.36	.11	.16	173			143			10.8			51		
MAY	2.58	.08	.13	118		5	120		15	6.2		1.1	28		1.3
JUN	2.20	.08	.14	214			305			13.4			75		
JUL	2.59	.08	.13	175			143			9.6			55		
AUG	3.27	.11	.11	110			78			6.9			32		
SEP	3.14	.11	.15	95			128			8.3			31		
OCT	4.03	.13	.15	138			170			9.1			53		
NOV	3.67	.12	.17	100			160			8.8			47		
DEC	4.89	.16	.28	110			755			9.6			33		
TOTAL	37.94														
AVG.		.10		150		5	242		15	9.9		1.1	50		1.3
MAX.			.28												
NO. OF ACRES	44.2	Number of samples		21		2	21		2	21		2	21		2
LOADING lb/acre/day	3														

Waste Stabilization Pond

PROJECT : CHESTERVILLE

Cell Acreage : 14.5

Total Acreage : 14.5

Commenced Operation : Nov. 1970

Operation :

- Series
- Parallel (SINGLE CELL)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

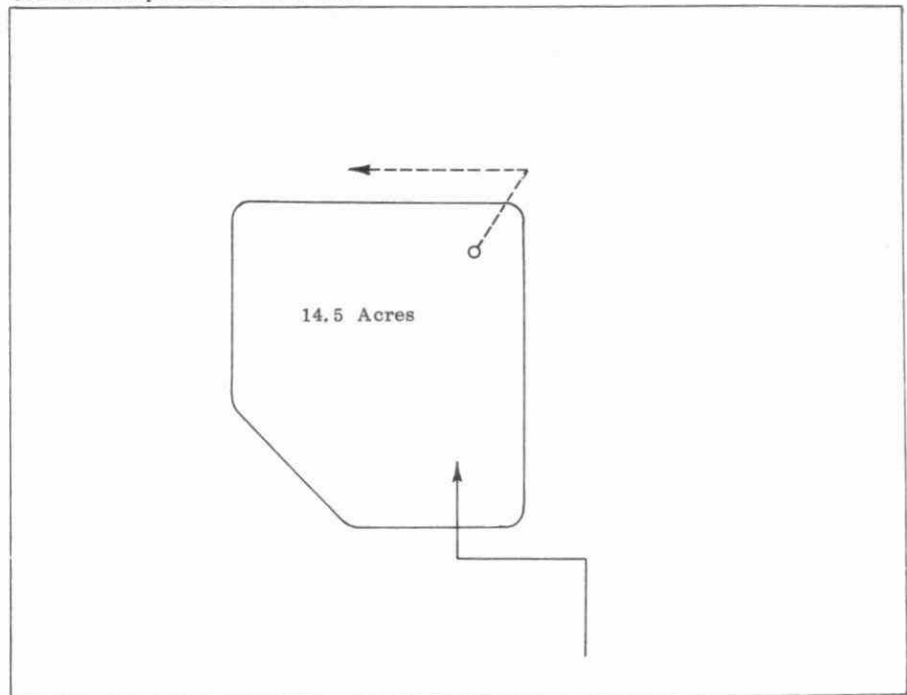
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 320 I gpm
 Pump 2 : 320 I gpm

Total Cap : 430 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW M ³ / Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	2.58	.08	.10												
FEB	2.33	.08	.15	80			80			6.4			25		
MAR	8.95	.29	.63												
APR	6.17	.21	.34	28			11	70		55	1.8		4.2	8	12
MAY	3.69	.12	.20	72			20	107			7.1		3.6	25	4
JUN	2.80	.09	.12												
JUL	3.91	.13	N/A	55				90			4.5			21	
AUG	3.98	.13	.18	67				60			5.9			32	
SEP	3.51	.12	.17	49				53			3.6			18	
OCT	6.76	.22	.24	24			3	58		15	2.4		2.6	12	4
NOV	5.39	.18	.24	70				60			4.1			15	
DEC	5.11	.17	.41												
TOTAL	55.18														
AVG.		.15		56			11	72		35	4.5		3.5	20	7
MAX.			.63												
NO. OF ACRES	14.5	Number of samples		17			4	17		3	17		4	17	4
LOADING lb/acre/day	6														

Waste Stabilization Pond

PROJECT : ERNESTOWN TWP
(AMHERSTVIEW)

Cell Acreage : 7.5 + 15.5 + 13.2 + 7.5
Total Acreage : 44.2

Commenced Operation: Sept. 1967
4th Cell Added : Aug. 1973

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

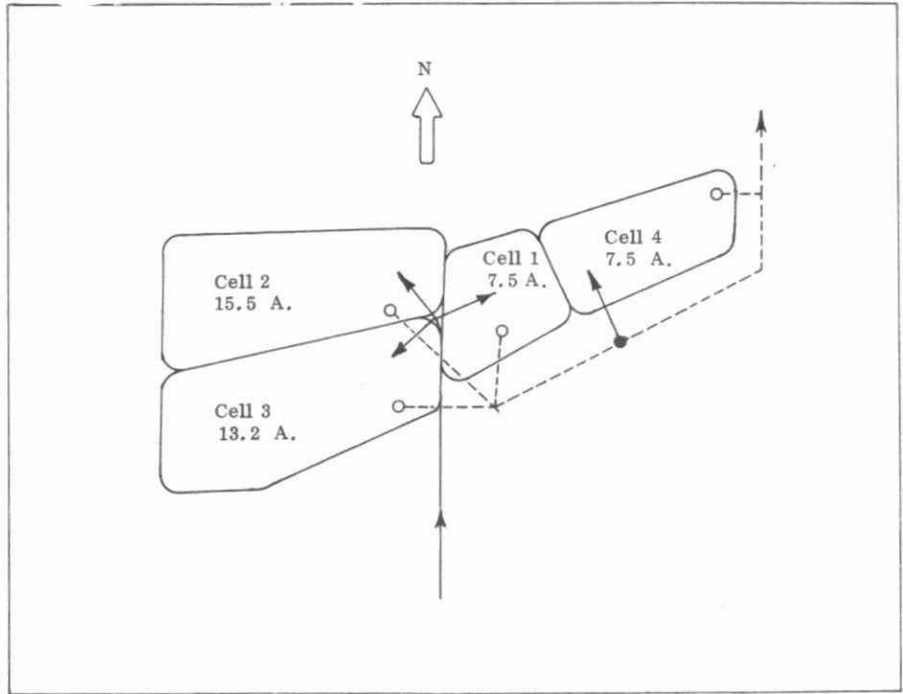
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 750 I gpm
Pump 2 : 750 I gpm
Total Cap : 1000 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN															
FEB															
MAR															
APR															
MAY															
JUN															
JUL															
AUG															
SEP															
OCT															
NOV															
DEC															
TOTAL															
AVG.															
MAX.															
NO. OF ACRES	Number of samples														
LOADING lb/acre/day															

L/17

Waste Stabilization Pond

PROJECT : LEEDS & LANSDOWNE

Cell Acreage : 6.3 + 5.8

Total Acreage : 12.1

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

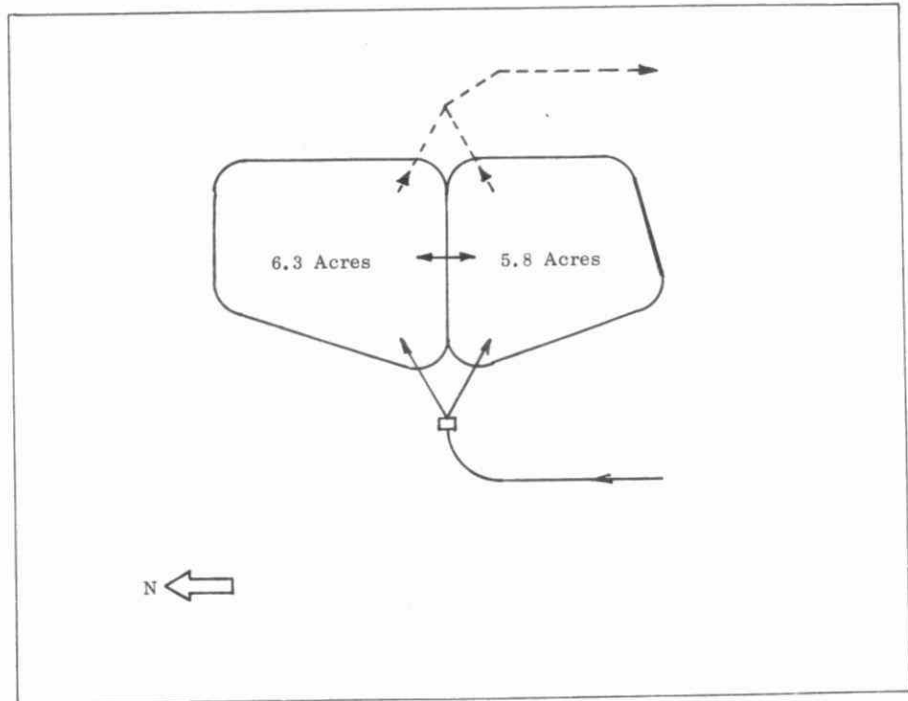
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 235 Igpm
Pump 2 : 235 Igpm

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	.302	.010	.023												
FEB	.342	.012	.017												
MAR	.459	.015	.039												
APR	.432	.014	.024												
MAY	.354	.011	.019												
JUN	.302	.010	.013												
JUL	.324	.010	.023		33			125			1.1			7.0	
AUG	.454	.015	.040												
SEP	.385	.013	.018												
OCT	.543	.018	.031		8			33			.3			2.0	
NOV	.554	.018	.025		8			15			.4			2.4	
DEC	.635	.020	.036												
TOTAL	5.086														
AVG.		.014	.040		18			66			.7			4.0	
MAX.															
NO. OF ACRES	19.5	Number of samples			5			5			5			5	
LOADING lb/acre/day															

Waste Stabilization Pond

PROJECT : MADOC

087

Cell Acreage : 15 + 15

Total Acreage : 30

Commenced Operation : Sept. 1972

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

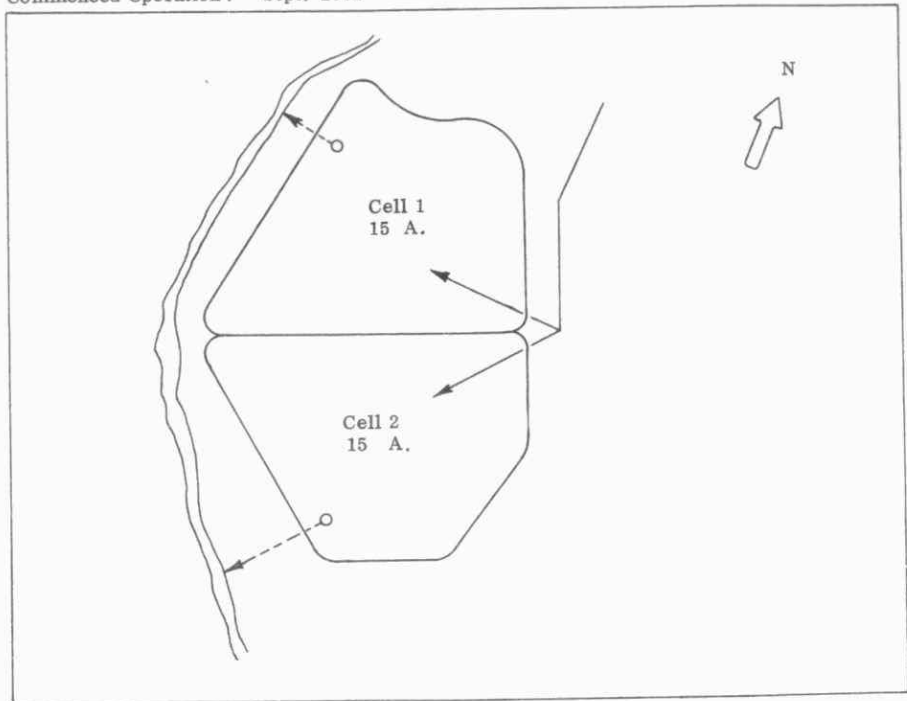
Flow Measurement :

- Flow Meter (Parshall Flume)
- Integrator
- Pump Timer

Pumping Station

Pump 1 :
Pump 2 : (GRAVITY FLOW)

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	3.48	.11	N/A												
FEB	3.35	.12	N/A												
MAR	7.26	.23	N/A												
APR	6.04	.20	N/A	120	15	2	170	15	15	7.4	.8	.1	25	2.9	
MAY	4.42	.14	N/A												
JUN	3.96	.13	N/A	56	6		90	15		5.2	.7		25	4.0	
JUL	4.52	.15	N/A	125	5		156	15		8.0	.8		42	2.2	
AUG	3.58	.12	N/A	88	8		95	15		5.1	1.7		23	5.8	
SEP	3.57	.12	N/A	113	10		216	28		6.2	1.6		35	6.3	
OCT	3.96	.13	N/A	65	5		80	30		4.8			37		
NOV	4.16	.14	N/A	55		5	100			4.7		.8	12		2.0
DEC	5.09	.16	N/A	60			65			5.1		.2	32		.5
TOTAL	53.39														
AVG.		.15		99	7	4	136	20	15	6.0	1.1	.4	28	4.4	1.5
MAX.															
NO. OF ACRES	30	Number of samples		14	16	7	14	16	3	11	12	6	13	7	3
LOADING lb/acre/day	5														

Waste Stabilization Pond

PROJECT :

Cell Acreage :

Total Acreage :

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 :

Pump 2 :

Total Cap :

Petawawa is a Conventional Activated Sludge Plant operated by the Department of National Defence.

The flows given here are for a pumping station operated by the Ministry of the Environment, supplying part of the volume flowing to this plant.

MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	1.25	.039	.046												
FEB	3.06	.110	.588												
MAR	2.94	.095	.241												
APR	2.78	.093	.139												
MAY	2.32	.074	.149												
JUN	2.72	.101	.134												
JUL	1.56	.051	.075												
AUG	2.18	.070	.128												
SEP	2.03	.068	.091												
OCT	2.89	.093	.142												
NOV	2.52	.084	.194												
DEC	5.65	.102	.141												
TOTAL	31.90														
AVG.		.087													
MAX.			.588												
NO. OF ACRES	Number of samples														
LOADING lb/acre/day															

Waste Stabilization Pond

PROJECT : PLANTAGENET

Cell Acreage : 17 Acres

Total Acreage : 17 Acres

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

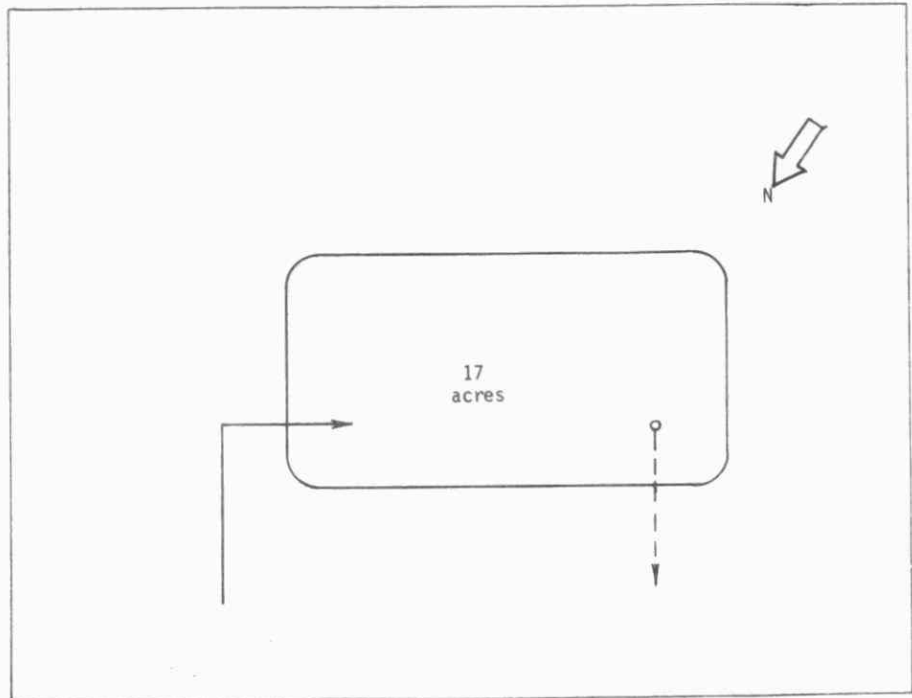
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 430 I gpm
 Pump 2 : 430 I gpm
 Total Cap : 860 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	2.33	.07	.07	250			418			15.8			88		
FEB	3.59	.13	.17	240			310			11.8			67		
MAR	6.45	.21	1.31	78			70			6.9			41		
APR	4.63	.16	.28	39		33	45		45	2.5		2.5	16		13
MAY	3.11	.10	.18	87			90			7.0			36		
JUN	3.13	.11	.16	68			123			6.7			29		
JUL	1.89	.06	.11	198			368			10.9			38		
AUG	3.00	.10	.12	134			253			6.9			26		
SEP	2.72	.10	.11	115			110			5.8			25		
OCT	3.93	.13	.14	74		17	130		15	6.7		1.0	26		3
NOV	3.25	.11	.14	65			100		15	4.4			15		
DEC	3.57	.11	.16	75			170			6.0			30		
TOTAL	41.60														
AVG.		.11		115		27	191		30	7.8		.6	37		9
MAX.			1.31												
NO. OF ACRES	17	Number of samples		20		5	20		4	20		5	20		5
LOADING lb/acre/day	8														

Waste Stabilization Pond

PROJECT : ROCKLAND

Cell Acreage : 19.8

Total Acreage : 19.8

Commenced Operation : 1964

Operation :

- Series
- Parallel (SINGLE CELL)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

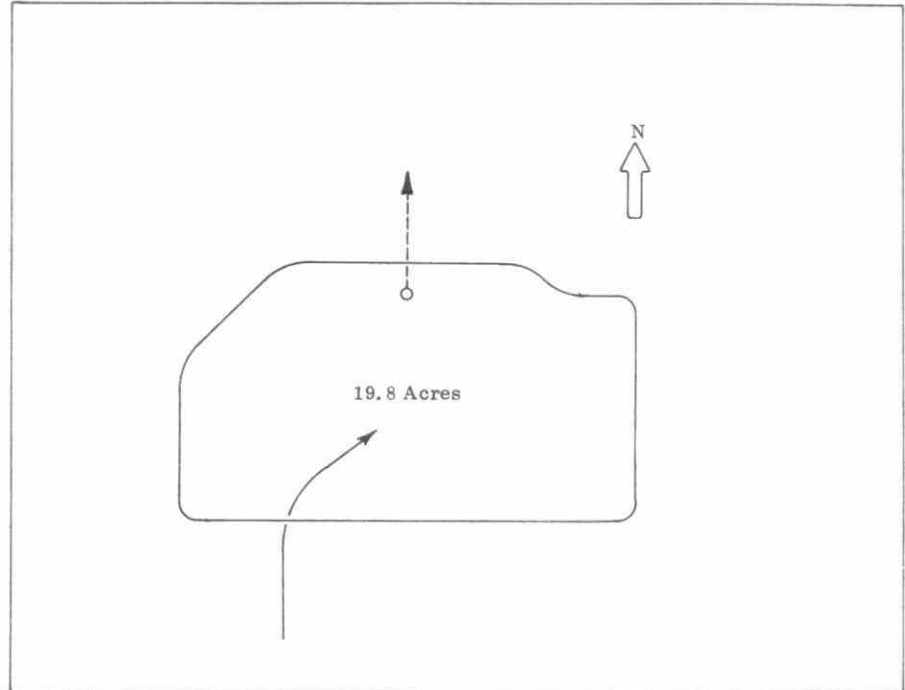
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 693.65 I gpm
 Pump 2 : 657.10 I gpm

Total Cap : 1080 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	5.37	.17	.21	25			53			5.6			32		
FEB	5.10	.18	.21	47			35			4.5			27		
MAR	12.76	.41	.62	38			25			3.1			18		
APR	10.08	.34	.51	42		26	36		20	3.1		3.3	4		10
MAY	5.05	.16	.24	94			36			3.2			16		
JUN	4.92	.16	.18	46						5.3			17		
JUL	4.55	.15	.17	46			48			4.7			17		
AUG	5.49	.17	.18	47			34			4.7			23		
SEP	5.44	.18	.21	52			78			6.1			28		
OCT	8.52	.28	.39	28		23	31		25	3.0		3.9	2		8
NOV	7.56	.25	.45	32			48			3.2			18		
DEC	7.60	.24	.30	25			38			2.8			15		
TOTAL	82.44														
AVG.		.23		45		25	42		22	4.2		3.6	21		8
MAX.			.62												
NO. OF ACRES	19.8	Number of samples		42		4	43		4	43		4	43		4
LOADING lb/acre/day	5														

Waste Stabilization Pond

PROJECT : STIRLING

Cell Acreage : 7.0 + 5.6

Total Acreage : 12.6 Acres

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

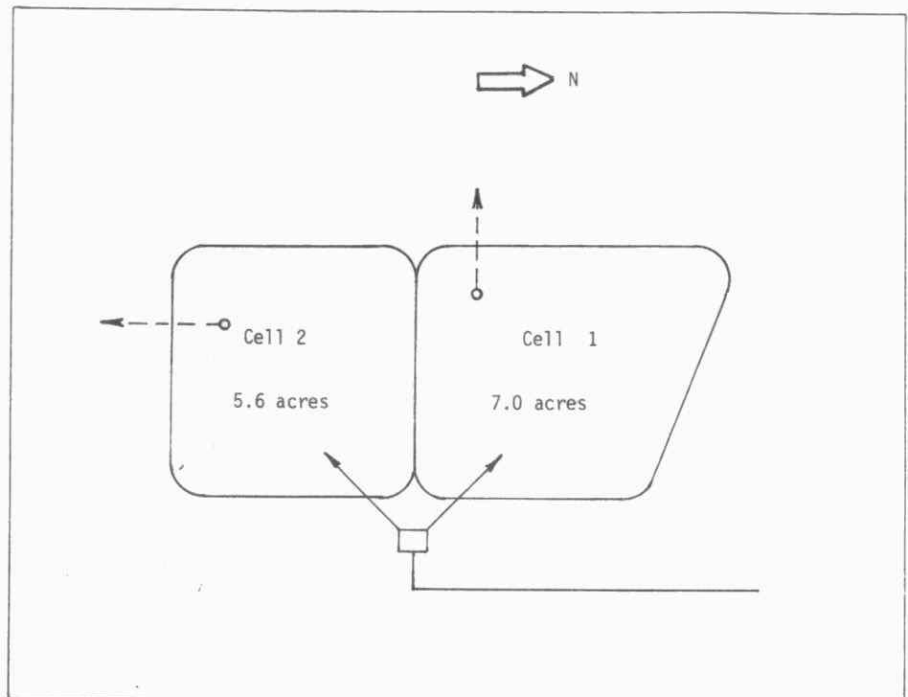
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 350 I gpm
 Pump 2 : 350 I gpm

Total Cap : 700 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
JAN	4.16	.13	N/A	268			200			13.0			56		
FEB	3.96	.14	N/A	220			225			27.4			51		
MAR	7.58	.24	N/A	73			83			4.1			18		
APR	5.77	.19	N/A	130	21	34	140	25	43	16.0	2.7	.9	1	18	10
MAY	5.39	.17	N.A												
JUN	4.80	.16	N/A												
JUL	4.64	.15	N/A												
AUG	4.75	.15	N/A												
SEP	6.10	.20	N/A												
OCT	4.63	.15	N/A		14	17		32	15		2.8	6.2		8	7
NOV	5.21	.17	N/A			8						2.1			3
DEC	6.13	.20	N/A												
TOTAL	63.12														
AVG.		.17		179	18	24	165	29	38	17.0	2.8	2.4	36	13	7
MAX.			N/A												
NO. OF ACRES	12.6	Number of samples		7	4	9	7	4	6	7	4	9	7	4	9
LOADING lb/acre/day	24														

Waste Stabilization Pond

PROJECT : TWEED

Cell Acreage : 15.6 + 15.2

Total Acreage : 30.8 Ac.

Commenced Operation : Mar. 1976

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

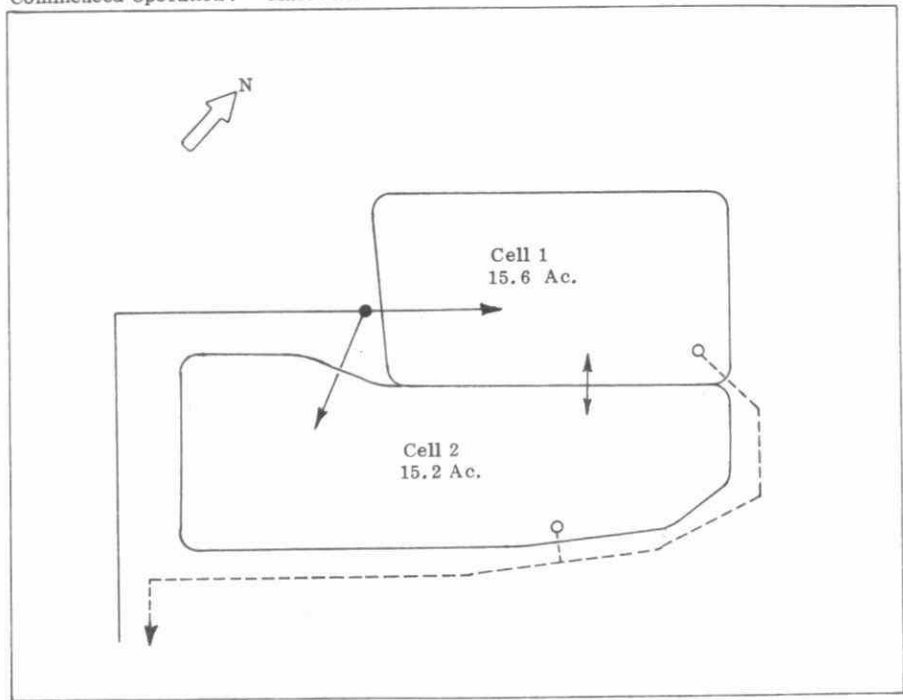
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 750 l gpm
Pump 2 : 750 l gpm

Total Cap : 750 l gpm



Significant Industries : Tweed Veneers, Tweed Steel Works, Sawyer Stoll Lumber, Lakewood Forest Products, Rashotte Lumber .

MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	4.27	.14	.16	150			110			8.0			42.0		
FEB	4.13	.15	.19	120			148			8.1			48.5		
MAR	27.37	.88	1.11	20			25			.9			3.5		
APR	19.50	.65	1.20	14		13	20		37	1.2	.5	1.3			2.8
MAY	9.92	.32	.47												
JUN	6.32	.20	.64												
JUL	4.84	.16	.35												
AUG	6.27	.20	N/A												
SEP	5.10	.17	N/A												
OCT	6.81	.22	N/A												
NOV	7.55	.25	N/A												
DEC	13.94	.45	N/A												
TOTAL	116.02														
AVG.		.32		65		10	76		34	4.6	.5	23.8			2.8
MAX.			1.20												
NO. OF ACRES	30.8	Number of samples		7		9	8		7	8		6	8		6
LOADING lb/acre/day	7														

Waste Stabilization Pond

PROJECT : VANKLEEK

Cell Acreage : 10 + 10 + 10

Total Acreage : 30 Acres

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

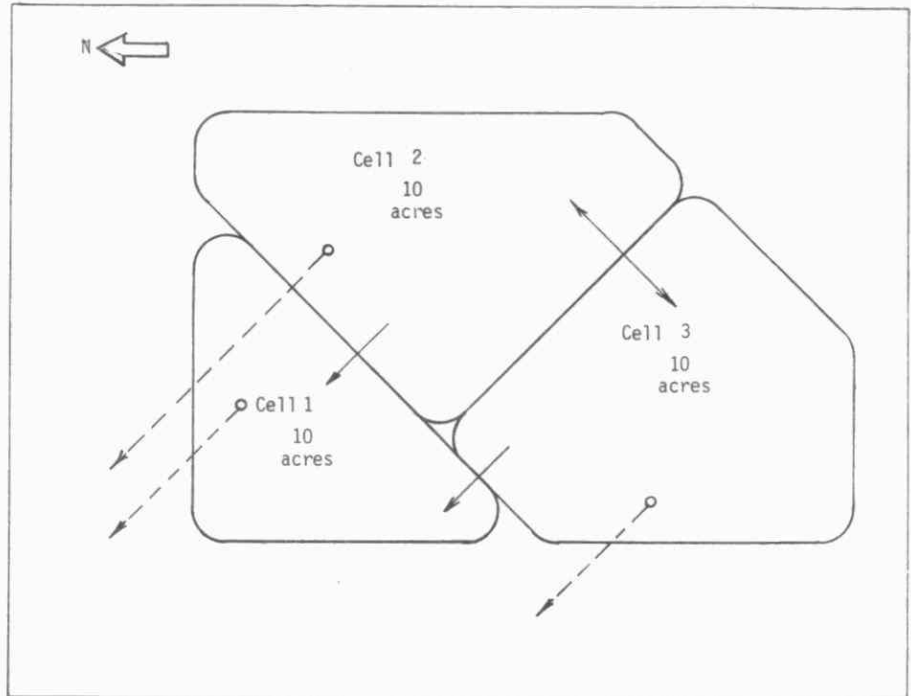
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 720 I gpm
 Pump 2 : 720 I gpm

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	2.66	.09	.21												
FEB	2.66	.09	.29												
MAR	6.74	.2	.49												
APR	4.79	.16	N/A												
MAY	3.26	.11	N/A	230			240			15.0			45		
JUN	2.67	.09	N/A	220			235			8.5			45		
JUL	2.18	.07	N/A	190			300			15.0			48		
AUG	2.81	.09	N/A	42			75			6.5			32		
SEP	3.32	.11	N/A	156			158			9.8			40		
OCT	4.68	.15	N/A	114			198			8.1			34		
NOV	4.57	.15	N/A												
DEC	4.89	.16	N/A	125			160			11.0			26		
TOTAL	45.21														
AVG.		.12		150			191			10.2			38		
MAX.			N/A												
NO. OF ACRES	30	Number of samples		9			9			9			9		
LOADING lb/acre/day	7														

Waste Stabilization Pond

PROJECT : WESTPORT

Cell Acreage : 7 Acres

Total Acreage : 7 Acres

Commenced Operation: Feb. 1974

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

Flow Measurement :

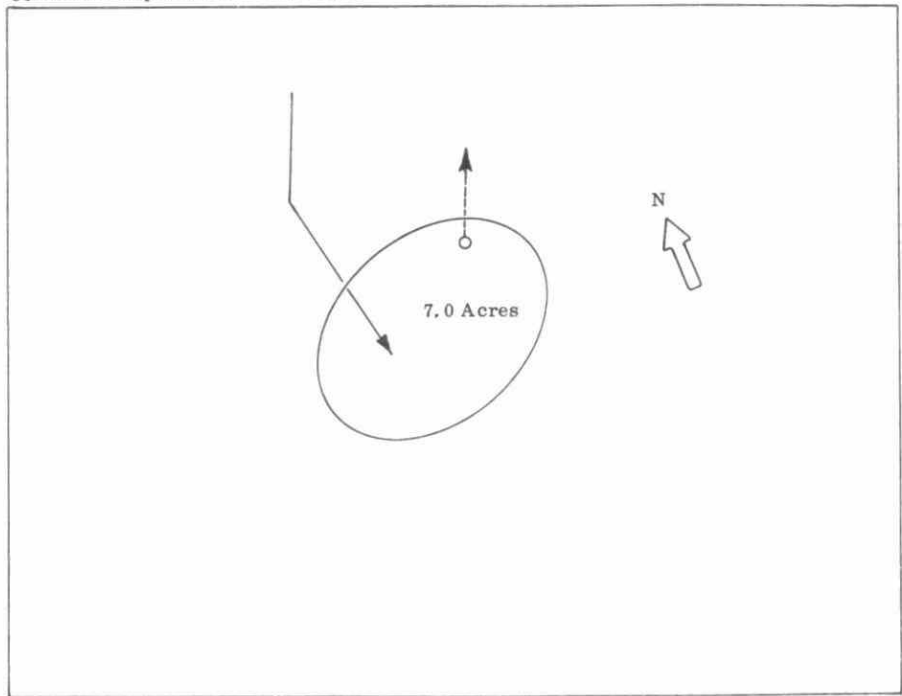
- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 300 I gpm

Pump 2 : 300 I gpm

Total Cap : 350 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	
JAN	.87	.028	.034													
FEB	.89	.032	.049													
MAR	1.48	.048	.068													
APR	1.46	.049	.072		30	18		20	25		3.1	1.1		20	13	
MAY	1.17	.038	.046													
JUN	.97	.032	.037													
JUL	1.06	.034	.040		18			40			2.0			9		
AUG	1.05	.034	.042													
SEP	.90	.029	.037													
OCT	.95	.031	.040													
NOV	.87	.028	.035	165			303			7.9			43			
DEC	1.14	.037	.048													
TOTAL	12.78															
AVG.		.035		165	22	18	303	50	25	7.9	2.4	1.1	43	13	13	
MAX.			.072													
NO. OF ACRES	8	Number of samples			2	3	9	2	3	9	2	3	9	2	3	3
LOADING lb/acre/day	10															

REGION 5
Northeastern

Waste Stabilization Pond

PROJECT : BLACK RIVER - MATHESON
(VAL GAGNE)

Cell Acreage : 5

Total Acreage : 5 acres

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

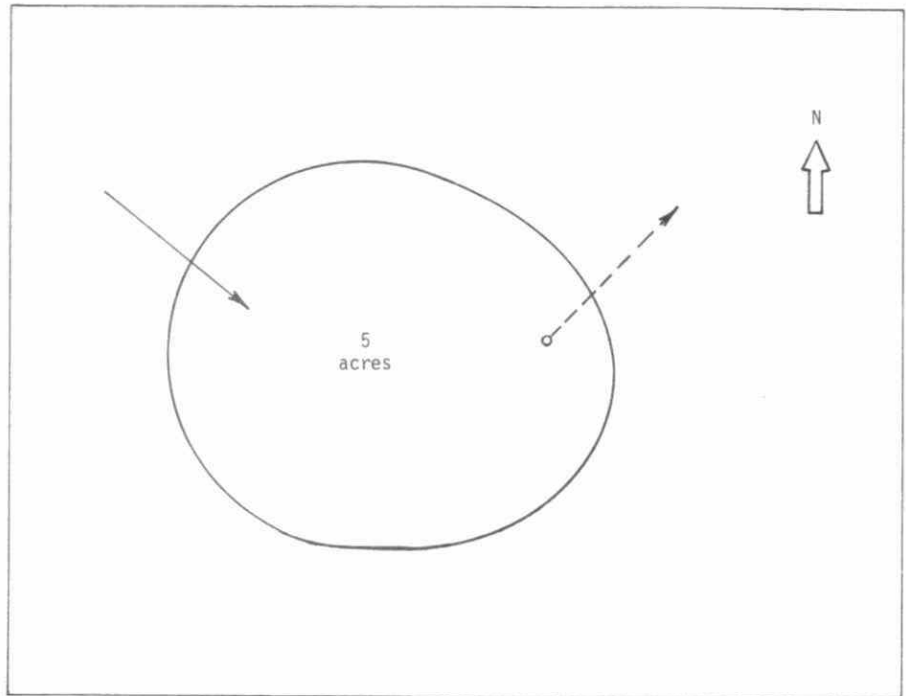
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 :
Pump 2 :

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN															
FEB				140	19		220	29		11.0	7.8		73	28	
MAR				200	11		582	23		8.6	7.3		33	26	
APR				28	7		40	19		0.2	1.3		6	6	
MAY				140	15		178	53		5.8	1.5		36	4.2	
JUN				140	8	6	223	10	13	4.3	2.4	1.3	26	4.0	2.6
JUL				190		8	350		14	6.2		3.2	31		4.2
AUG				550		7	1229		16	23.4		4.5	90		7.6
SEP				220		8	300		15	10.4		3.5	48		6.1
OCT				193		5	398		13	16.0		2.8	123		2.0
NOV				151		5	343		11	7.4			45		
DEC				90		3	380		10	19.0		3.0	115		3.0
TOTAL															
AVG.				201	13	6	404	31	13	10.6	3.6	3.2	54.8	12	4.9
MAX.															
NO. OF ACRES	Number of samples			18	6	12	18	6	11	16	6	8	16	6	7
LOADING lb/acre/day															

Waste Stabilization Pond

PROJECT : BRUCE MINES

Cell Acreage : 7.3

Total Acreage : 7.3

Commenced Operation : January 16, 1975

Operation :

- Series
- Parallel (Single Cell)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

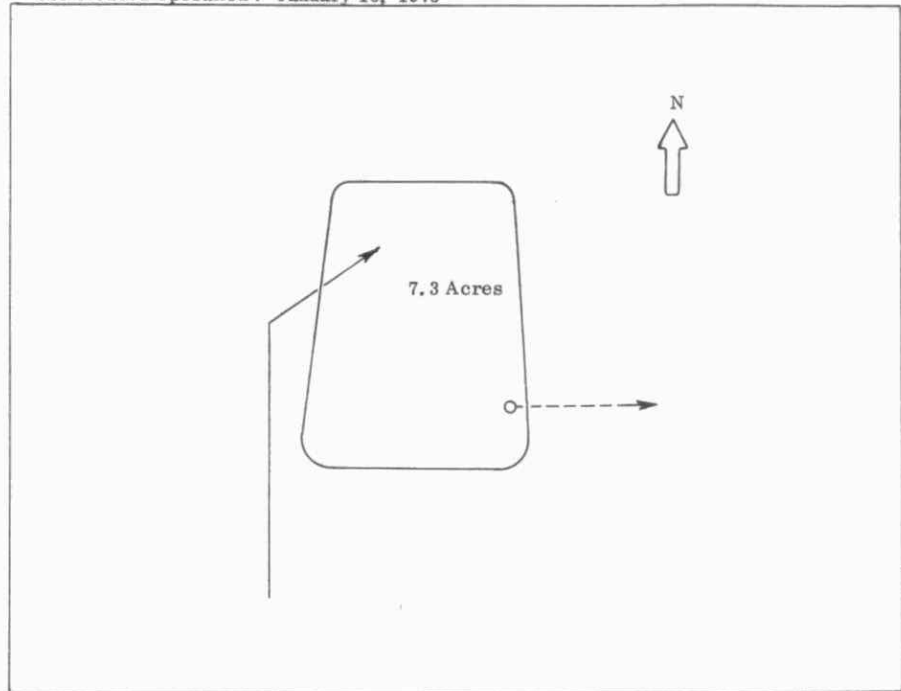
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 207 l gpm
 Pump 2 : 207 l gpm

Total Cap : 207 l gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
JAN	1.23	.040	N/A	92	17		96	14		5.8	2.7		28	14		
FEB	1.22	.044		170	34		83	20		6.2	3.1		24	17		
MAR	3.24	.105		53		11	69		19	3.2		1.7	17		10	
APR	2.74	.091														
MAY	1.92	.060		98	6		87	35		3.9	1.0		29	6		
JUN	1.62	.054		105	5		77	24		6.0	.8		29	4		
JUL	1.62	.055		290	7		298	11		7.6	.8		37	6		
AUG	1.45	.044		125	5		142	30		6.9	1.1		35	4		
SEP	1.90	.063		74	11		91	38		7.6	2.1		25	7		
OCT	2.53	.081		33	15		50	50		3.6	1.6		16	6		
NOV	2.47	.082		90	8		93	31		3.9	1.2		19	4		
DEC	2.13	.071	N/A	120	13		90	47		2.6	1.5		27	7		
TOTAL	24.07															
AVG.		.066		114	12	11	107	30	19	5.1	1.3	1.7	27	8	10	
MAX.			N/A													
NO. OF ACRES	7.3	Number of samples			20	18	6	20	18	6	20	18	6	20	18	6
LOADING lb/acre/day	9.2															

Waste Stabilization Pond

PROJECT : BURKS FALLS

Cell Acreage : 9.5 + 9.5

Total Acreage : 19

Commenced Operation : 1974

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

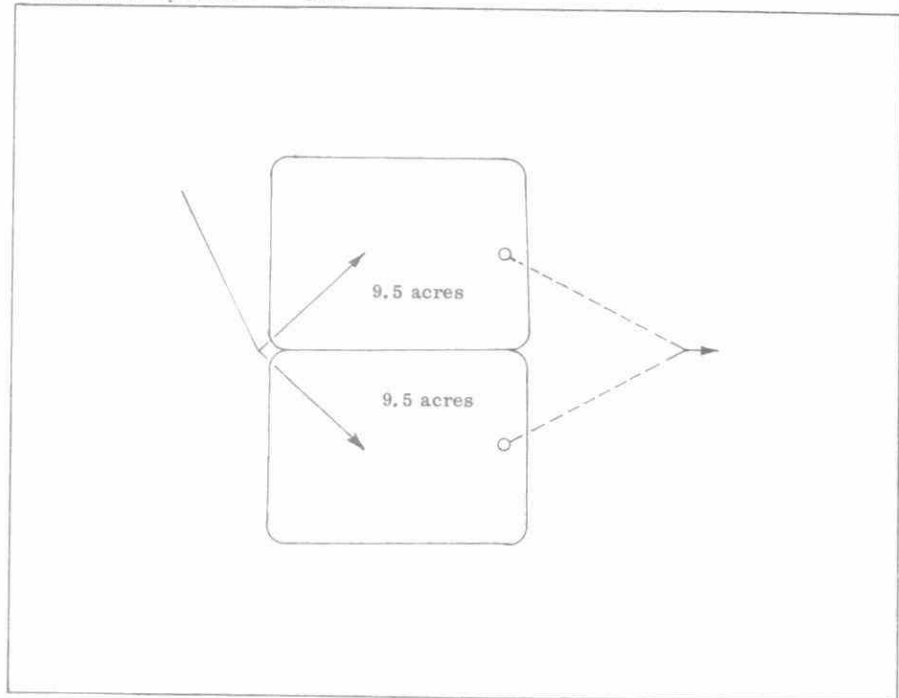
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 415 I gpm
Pump 2 : 415 I gpm

Total Cap : 415 I gpm



MONTH	FLOWS			BOD			SUSP SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	1.53	.049	.054	163	1		268	5		9.7	.05		58	.4	
FEB	1.40	.050	.063	42	1		69	5		5.4	.04		38	.4	
MAR	2.60	.083	.165	100	1		155	5		9.2	.04		49	.4	
APR	2.16	.072	.106	29		5	53		11	2.7		.06	19		2.2
MAY	1.45	.047	.074	85	7		87	17		7.3	2.10		41	13.0	
JUN	1.25	.042	.053	73	18		67	38		6.3	1.80		49	6.5	
JUL	1.43	.046	.046	65	11		43	14		6.0	1.10		36	3.2	
AUG	1.52	.049	.062	80	12		59	20		7.9	3.0		43	4.8	
SEP	1.67	.054	.064												
OCT	1.91	.062	.068	80		5	105		6	5.9		.50	44		2.4
NOV	1.49	.050	.090												
DEC	1.38	.044	.047	65	4		85	5		6.4	0.20				
TOTAL	19.79														
AVG.		.054		81	7	5	106	15	8	6.7	1.05	.62	42	4.0	2.3
MAX.			.165												
NO. OF ACRES	19	Number of samples		13	10	5	13	10	5	13	10	6	12	9	6
LOADING lb/acre/day	2														

Waste Stabilization Pond

PROJECT : ENGLEHART

Cell Acreage : 10 + 10

Total Acreage : 20

Commenced Operation : -

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

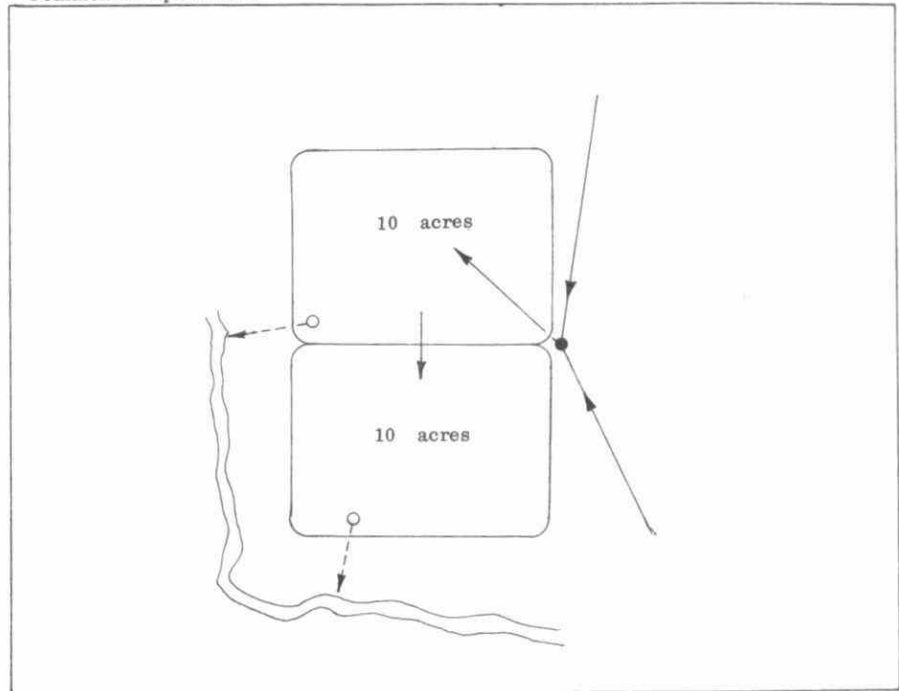
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 350 I gpm
Pump 2 : 350 I gpm

Total Cap : 350 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
JAN	6.74	.22		107	41	23	161	17	10	6.3		3.4	35		15	
FEB	5.29	.19		260	60	40	395	15	11	10.0		4.2	46		19	
MAR	11.12	.37		43	34	30	52	25	16	3.2	3.6	4.0	24	19	18	
APR	13.54	.45		24	12	3	112	19	19	2.5	1.8	2.6	16	10	13	
MAY	10.76	.35		10	8	6	23	27	12	1.4		1.1	11		5	
JUN	8.73	.29		7	2	3	17	28	8	1.0		1.5	7		4	
JUL	7.38	.24		14	24	3	12	41	6	1.2		1.2	8		3	
AUG	4.92	.16		155	14	5	529	30	5	8.0		1.5	34		3	
SEP	6.13	.21		55	7	7	90	30	35	3.7		2.7	30		6	
OCT	7.69	.24		103	14	6	215	38	21	7.2		2.0	38		4	
NOV	8.54	.29		88	13	12	183	40	36	4.9		2.6	27		9	
DEC	8.36	.27		30	18	8	55	33	20	2.6		2.8	19		8	
TOTAL	99.20															
AVG.	8.27	.27		74	21	12	155	29	16	4.5	2.7	2.4	25	15	9	
MAX.																
NO. OF ACRES	20	Number of samples			22	22	22	22	22	22	22	2	22	22	2	22
LOADING lb/acre/day	10															

Waste Stabilization Pond

PROJECT : FAUQUIER TWP.
(MOONBEAM)

967

Cell Acreage : 6.0

Total Acreage : 6.0

Commenced Operation : 1961

Operation :

- Series
- Parallel (Single Cell)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

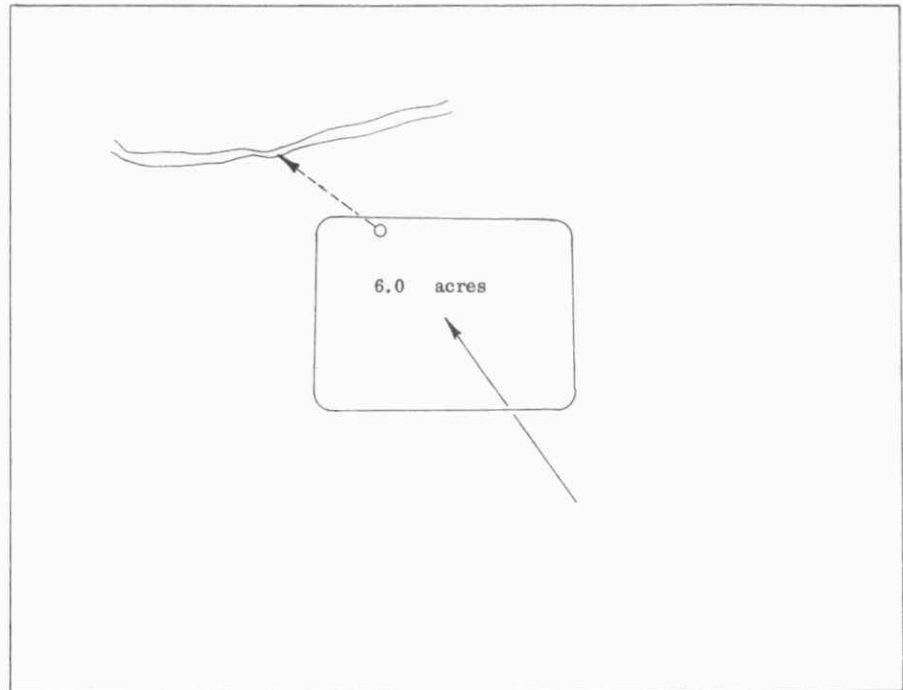
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 338 I gpm
Pump 2 : 338 I gpm

Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW	AVERAGE	MAXIMUM	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	INFLUENT	CELL CONTENTS	EFFLUENT	
	Mil Gal	MGD	MGD	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
JAN	1.58	.051	.081	210		58	222		60	9.6		9.2	43		45	
FEB	1.64	.059	.081	155		95	202		45	9.0		9.6	41		36	
MAR	4.58	.148	.487	135		79	149		37	7.3		6.4	27		31	
APR	2.84	.095	.162	140		20	59		19	9.0		3.0	18		14	
MAY	2.86	.092	.182	178		29	131		70	9.1		4.0	24		16	
JUN	1.78	.059	.122	170	55	55	196	349	483	13.0	4.6	6.1	32	32	32	
JUL	1.52	.049	.081	155	24		167	204		4.2	2.7		45	18		
AUG	2.35	.076	.162	210	25		166	123		9.0	1.7		35	8		
SEP	2.98	.096	.223	180		52	128		157	10.0		4.5	17		18	
OCT	2.09	.067	.122	180	50		128	235		18.6	5.6		29	28		
NOV	3.22	.107	.304	88	43		75	108		9.7	3.5		20	16		
DEC	1.49	.048	.122	100	15		115	27		7.0	4.0		39	17		
TOTAL	28.94															
AVG.		.079		145	35	58	151	172	107	9.8	3.6	6.2	32	19	27	
MAX.			.304													
NO. OF ACRES	6	Number of samples			21	10	13	21	10	13	21	10	14	21	10	13
LOADING lb/acre/day	19															

Waste Stabilization Pond

PROJECT : HAILEYBURY
(NORTH COBALT)

Cell Acreage : 10

Total Acreage : 10

Commenced Operation: N/A

Operation :

- Series
- Parallel (Single Cell)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

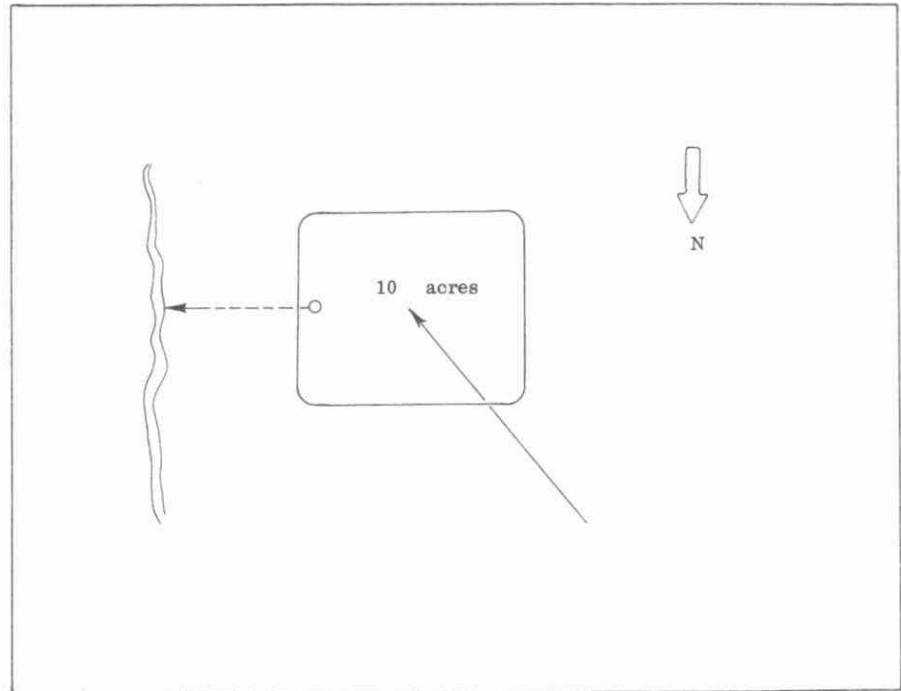
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 231 I gpm
Pump 2 : 225 I gpm

Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	
JAN	1.56	.051	.059	105			153			7.7			57			
FEB	1.27	.045	.053	90			83			7.0			61			
MAR	3.47	.112	.303	80			87			4.2			30			
APR	3.20	.107	.242	30		12	49		17	3.5		3.7	23		13	
MAY	1.29	.041	.068	130	6	26	72	58	30	5.7	0.5	2.0	55	12	8	
JUN	1.39	.046	.138	130	9		212	14		17.0	3.2		71	8		
JUL	1.09	.035	.087	110	4		75	5		6.2	3.4		45	11		
AUG	1.11	.036	.071	150	9		185	34		7.1	4.2		37	12		
SEP	1.50	.050	.069	82	10		133	12		4.9	3.4		35	5.0		
OCT	1.33	.043	.118	85		11	130		17	7.5		1.8	31		2	
NOV	1.95	.065	.098	133		3	123		6	5.5		1.3	35		3	
DEC	1.97	.063	.100	150			130			2.9			42			
TOTAL	21.13															
AVG.		.058		105	8	12	113	23	17	6.7	3.2	1.9	43	20	5	
MAX.			.303													
NO. OF ACRES	10	Number of samples			22	8	16	22	8	16	22	8	16	22	8	16
LOADING lb/acre/day	6															

Waste Stabilization Pond

PROJECT : HEARST

Cell Acreage : 15.5 + 15.5 + 15.5 + 15.5 (Note: Est. 50 Acres Usable due to rock outcropping)

Total Acreage : 50 (Usable Equivalent)

Commenced Operation : July 1973

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

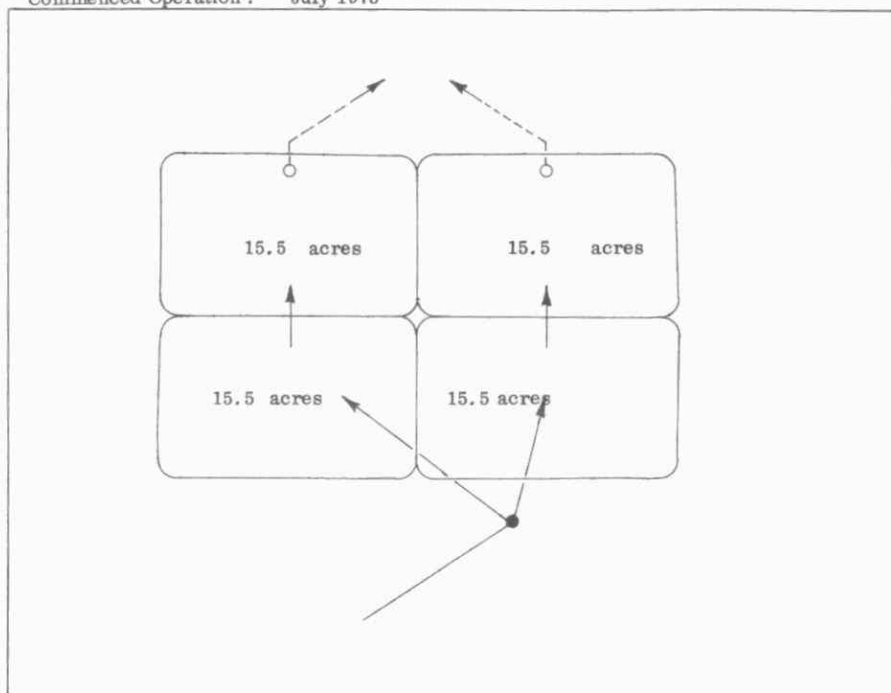
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 1400 I gpm
 Pump 2 : 1400 I gpm
 Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	16.1	.520	.851												
FEB	15.0	.535	1.072	120		37	118		23	5.0		4.8	25		19
MAR	28.5	.919	2.149	120		60	79		19	5.3		5.0	23		21
APR	29.2	.974	2.238	41		23	84		23	4.7		2.8	14		10
MAY	19.6	.632	0.906	100	46		86	43		6.6	2.7		21	14	
JUN	18.9	.632	0.911	100	18		82	91		6.6	3.7		29	11	
JUL	20.9	.675	1.212												
AUG	20.5	.662	1.368	73	17		71	36		4.0	2.9		21	6	
SEP	23.5	.757	1.193	60	24		50	315		3.8	4.8		26	20	
OCT	20.9	.674	1.732	82		14	90		28	5.0		2.8	20		5
NOV	19.1	.635	.947												
DEC	16.4	.530	.837	98	13		148	38		7.0	2.5		43	11	
TOTAL	248.6														
AVG.		.681		78	21	22	91	85	24	5.3	3.1	3.1	22	11	9
MAX.			2.238												
NO. OF ACRES	50	Number of samples		24	7	18	24	7	18	23	7	19	22	7	19
LOADING lb/acre/day	11														

Waste Stabilization Pond

PROJECT : LITTLE CURRENT

Cell Acreage : 10

Total Acreage : 10

Commenced Operation: Jan. 1965

Operation :

- Series
- Parallel (Single Cell)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

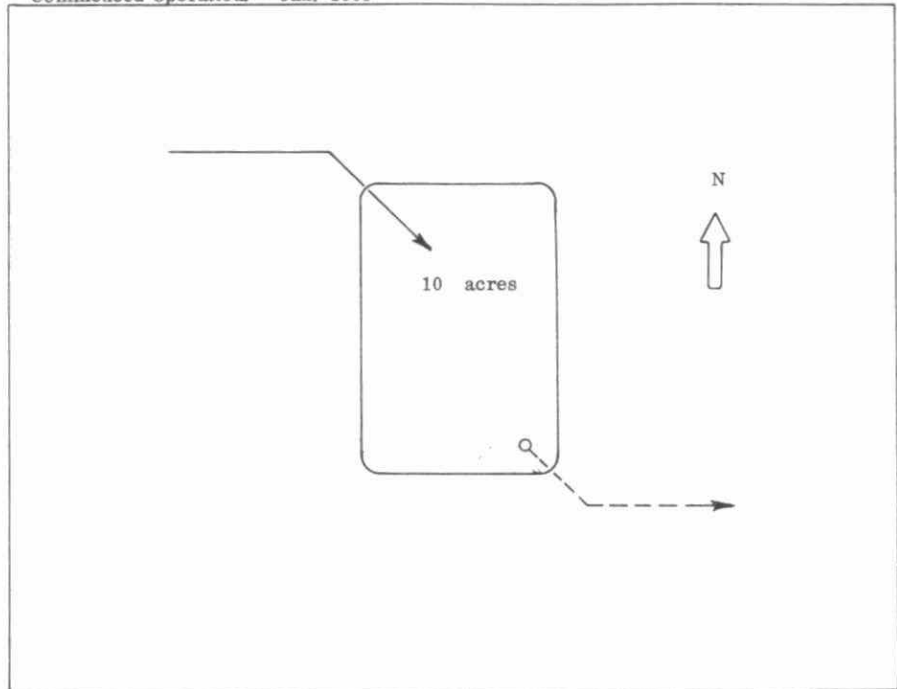
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 434 I gpm
 Pump 2 : 434 I gpm
 Total Cap : 434 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	5.58	.179	.284	130		10	75		12	5.1		5.4	15		8
FEB	4.14	.148	.266	30		8	24		6	5.9		5.3	14		9
MAR	7.76	.250	.896	12			18			2.6			6		
APR	5.98	.199	.360	32		8	51		6	4.9		2.9	15		7
MAY	4.27	.138	.227	50		4	54		11	9.8		1.9	8		3
JUN	3.82	.127	.216	80		36	83		36	9.5		4.9	19		12
JUL	4.71	.152	.248												
AUG	5.08	.164	.288												
SEP	5.34	.178	.497												
OCT	5.86	.189	.356												
NOV	5.52	.184	.363												
DEC	5.02	.162	.356												
TOTAL	63.08														
AVG.		.173		59		17	55		18	6.8		4.2	14		9
MAX.			.896												
NO. OF ACRES	10	Number of samples		7		6	7		6	7		6	7		6
LOADING lb./acre/day	10														

Waste Stabilization Pond

PROJECT : MANITOWANING
(ASSIGINACK)

Cell Acreage : 3.8 + 3.8

Total Acreage : 7.6 Acres

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

Flow Measurement :

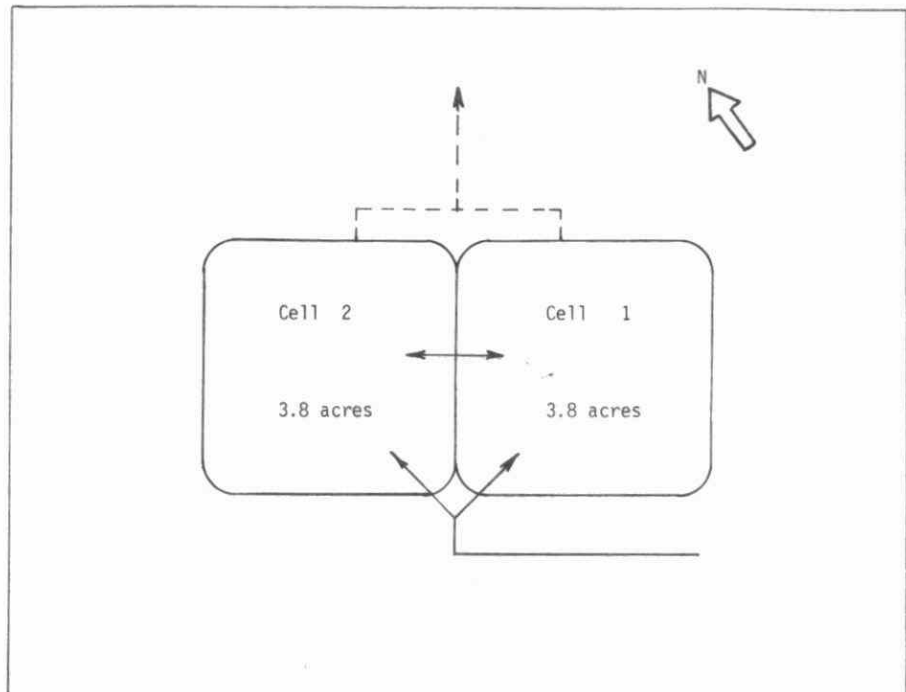
- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 404 I gpm

Pump 2 : 404 I gpm

Total Cap : 610 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	.73	.023	N/A	333			388			16.0			77		
FEB	.69	.024		173			195			11.0			82		
MAR	2.55	.082		56	3		92	15		3.5	0.3		25	2.3	
APR	1.62	.054		24	12	11	41	31	31	5.4	2.0	2.0	14	10.0	9.5
MAY	1.48	.048		91	30		52	102		4.7	1.3		31	9.0	
JUN	.72	.024		112	47		110	129		6.2	1.7		31	11.0	
JUL	.86	.028		56	29		53	72		5.3	1.7		29	10.0	
AUG	.90	.029		108	28		118	84		6.6	1.7		44	10.0	
SEP	1.27	.042		85	32		153	58		4.9	1.9		29	7.0	
OCT	1.56	.050		28	13		31	24		2.0	1.0		16	5.0	
NOV	1.71	.057		70	6	4	68	22	10	4.5	.9	.7	41	3.6	3.4
DEC	1.98	.064	N/A	310			743								
TOTAL	16.07														
AVG.	1.34	.044		95	22	10	173	59	27	7.0	2.8	1.7	42	8.6	8.3
MAX.															
NO. OF ACRES	7.6	Number of samples		33	28	10	33	28	10	31	26	10	31	26	10
LOADING lb/acre/day	5.5														

Waste Stabilization Pond

PROJECT : MATTAWA

Cell Acreage : 4.5 + 8.5 + 5.0

Total Acreage : 18.0

Commenced Operation : 1963

Operation :

- Series (# 1 & # 3 in parallel
- Parallel Series to #2)
- Other :

Discharge :

- Seasonal
- Continuous (100% Exfiltration)
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

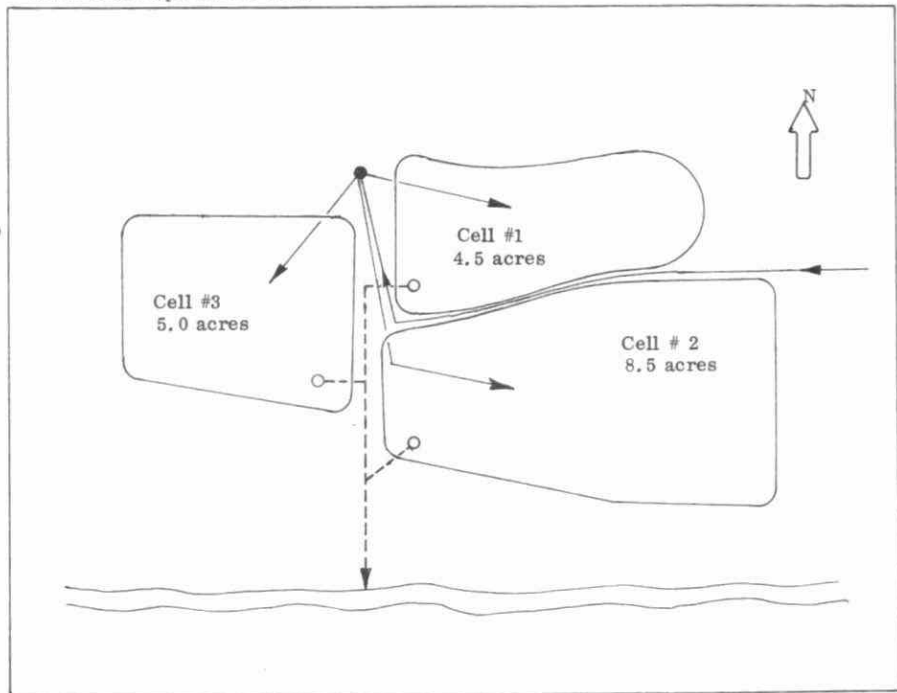
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 800 I gpm
Pump 2 : 800 I gpm

Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	4.03	.130	N/A	15		44	26		19	1.2		3.5	8		20
FEB	3.89	.139	.216	55		37	41		21	3.0		3.5	17		21
MAR	5.90	.190	.288	36		22	44		14	2.3		2.7	21		15
APR	6.62	.221	1.116	69		20	70		35	4.8		2.9	21		16
MAY	4.14	.134	.252	27		13	35		27	1.8		2.2	12		9
JUN	3.53	.118	.180	44		22	33		36	2.6		1.2	10		8
JUL	3.78	.122	.252	65		19	111		24	5.6		1.6	27		13
AUG	3.89	.125	.180	35		16	41		66	3.0		4.1	18		15
SEP	3.74	.125	.180	17		14	15		23	2.0		2.9	16		13
OCT	5.04	.163	.300	9		4	13		5	2.2		2.5	7		12
NOV	4.97	.166	.216	40		5	62		7	3.2		0.7	15		12
DEC	4.54	.146	.468	11		8	25		8	2.5		0.7	13		6
TOTAL	54.07														
AVG.		.148		38		17	43		26	3.0		2.4	16		10
MAX.			1.116												
NO. OF ACRES	8.8	Number of samples			20		20	20		20		20	20		20
LOADING lb/acre/day	6														

Waste Stabilization Pond

PROJECT : NEW LISKEARD

Cell Acreage : 10.1 + 10.0 (6 New Liskeard + 4 Dymond Twp) + 10.1 + 12.8 + 20.7

Total Acreage : 63.7 (New Liskeard)

Commenced Operation : 1964
Expansion to 63.7 Acres : August 1973

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other : Continuous with Spring drawdown

Phosphorus Removal:

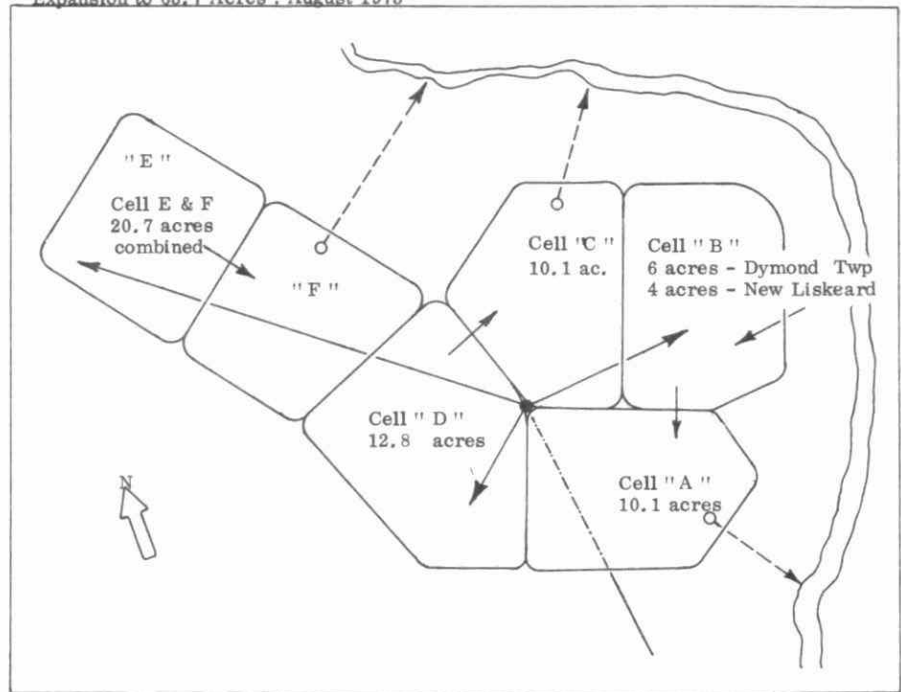
- Batch
- Continuous
- None

Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 1280 I gpm
Pump 2 : 1160 I gpm
Total Cap : 1630 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	
JAN	19.278	.622	.844	130		53	169		12	6.8		5.6	48		20	
FEB	17.685	.632	.768	153		60	140		11	6.5		6.0	48		23	
MAR	41.188	1.329	2.347	64		24	103		16	3.2		4.2	19		17	
APR	57.534	1.918	2.347	71		18	93		19	1.8		3.2	7		12	
MAY	37.427	1.207	2.304	115		16	150		31	4.8		2.3	20		8	
JUN	30.864	1.029	2.814	123		17	139		30	4.6		3.3	20		10	
JUL	28.398	.916	1.243	243		14	233			2.7		2.9	18		9	
AUG	27.054	.873	1.943							7.0		4.6	35		9	
SEP	24.192	.806	1.382	85		13	107			3.8		3.7	20		7	
OCT	26.726	.862	1.229	113		4	148		9	7.9		4.1	20		7	
NOV	32.717	1.091	1.766	150		9	124		13	5.8		7.0	23		9	
DEC	27.110															
TOTAL	370.173															
AVG.		1.014		122		23	138		19	4.9		4.3	24		13	
MAX.			2.814													
NO. OF ACRES	63.7	Number of samples			23		55	22		40	24		52	23		52
LOADING lb/acre/day	19.4															

Waste Stabilization Pond

PROJECT : NORTH HIMSWORTH
(CALLANDER)

504

Cell Acreage : 14.5

Total Acreage : 14.5

Operation :

- Series
- Parallel
- Other: One Cell

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

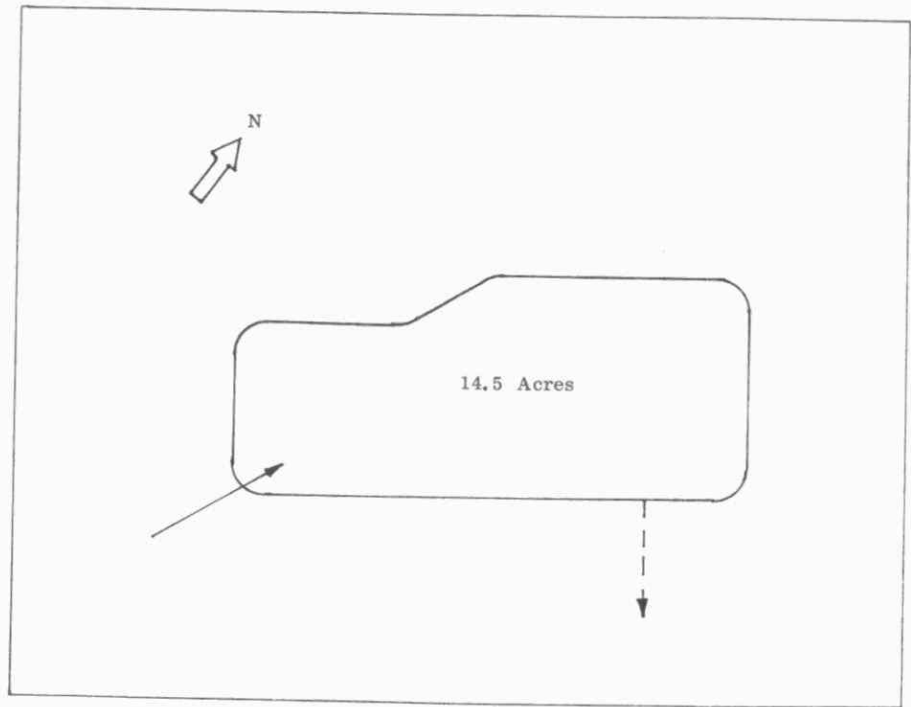
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 609 Igpm
Pump 2 : 609 Igpm

Total Cap :



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mjl Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	1.33	.043	N/A	140	44		158	4		6.6	2.2				
FEB	1.22	.043	N/A	170	15		205	20		11.0	2.3		6	15	
MAR	1.59	.051	N/A	170	28		252	37		9.0	3.4				
APR	4.08	.136	N/A	108	12		91	15		5.7	1.7		35	10	
MAY	2.61	.084	N/A	120	26	11	177	42	26	6.2	0.7	0.6	40	3	5
JUN	1.79	.060	N/A	140	6		133	15		6.8	0.6				
JUL	1.76	.057	N/A	145	9		118	19		8.4	1.3				
AUG	2.01	.064	N/A	210	5		267	14		7.0	0.9		37	4	
SEP	2.30	.077	N/A	125	2		152	10		8.3	0.9		44	4	
OCT	2.41	.078	N/A	100	3		102	13		5.7	0.5		31	4	
NOV	2.36	.079	N/A	95		3	105		24	5.3		0.4	45		3
DEC	2.61	.084	N/A	100	3		38	15		5.8	0.4		37		4
TOTAL	26.07														
AVG.		.071		128	11	6	155	17	25	6.8	1.3	0.5	37	6	4
MAX.			N/A												
NO. OF ACRES	14.5	Number of samples		27	15	28	27	15	27	20	15	27	17	9	19
LOADING lb/acre/day	6														

Waste Stabilization Pond

PROJECT : POWASSAN

Cell Acreage : 7

Total Acreage : 7

Commenced Operation : 1962

Operation :

- Series
- Parallel (Single Cell)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

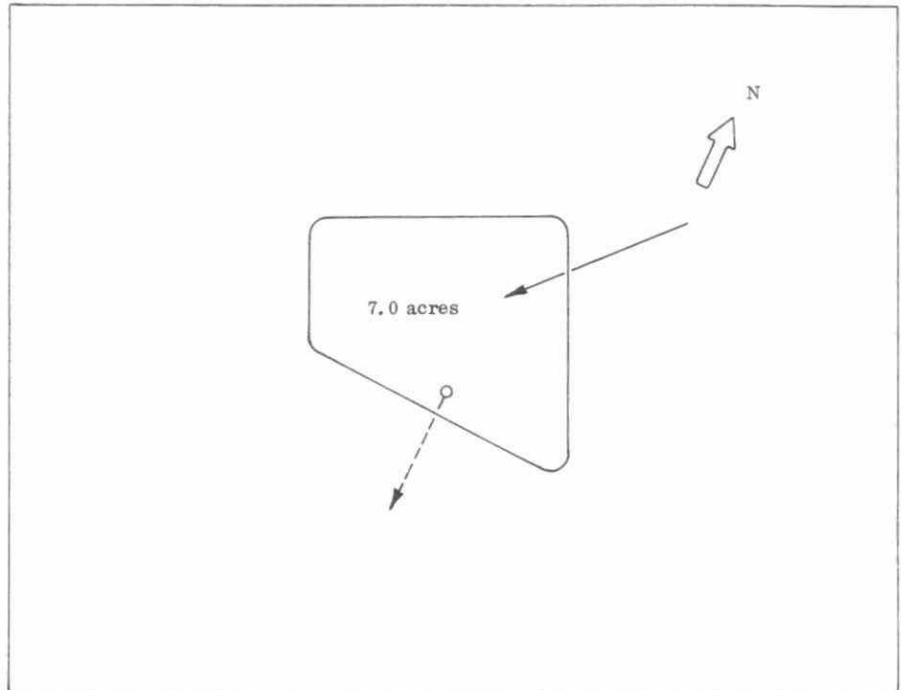
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 240 I gpm
Pump 2 : 240 I gpm

Total Cap : N/A



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL			
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	
JAN	1.87	.060	.094													
FEB	1.74	.062	.081	70		30	181		30	7.6		5.2	59		29	
MAR	16.26	.524	.389													
APR	3.90	.130	.219	80		13	209		69	4.6		2.4	47		13	
MAY	2.25	.073	.121	70		28	111		88	5.2		3.7	26		20	
JUN	1.78	.059	.077	90		100	100		159	9.8		6.5	61		39	
JUL	1.87	.060	.072													
AUG	2.73	.088	.166													
SEP	3.36	.111	.276													
OCT	3.16	.102	.272													
NOV	4.42	.147	N/A	100	12		150	14		8.3		39	62	18		
DEC	3.91	.126	.444													
TOTAL	47.25															
AVG.		.129		82	12	43	150	14	87	7.1		4.3	51	18	25	
MAX.			.444													
NO. OF ACRES	6.9	Number of samples			5	1	4	5	1	4	5		5	5	1	4
LOADING lb/acre/day	15															

Waste Stabilization Pond

PROJECT : SHACKLETON - MACHIN TWP
(FAUQUIER)

Cell Acreage : 10.0

Total Acreage : 10.0

Commenced Operation : Nov. 1974

Operation :

- Series
- Parallel (Single Cell)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

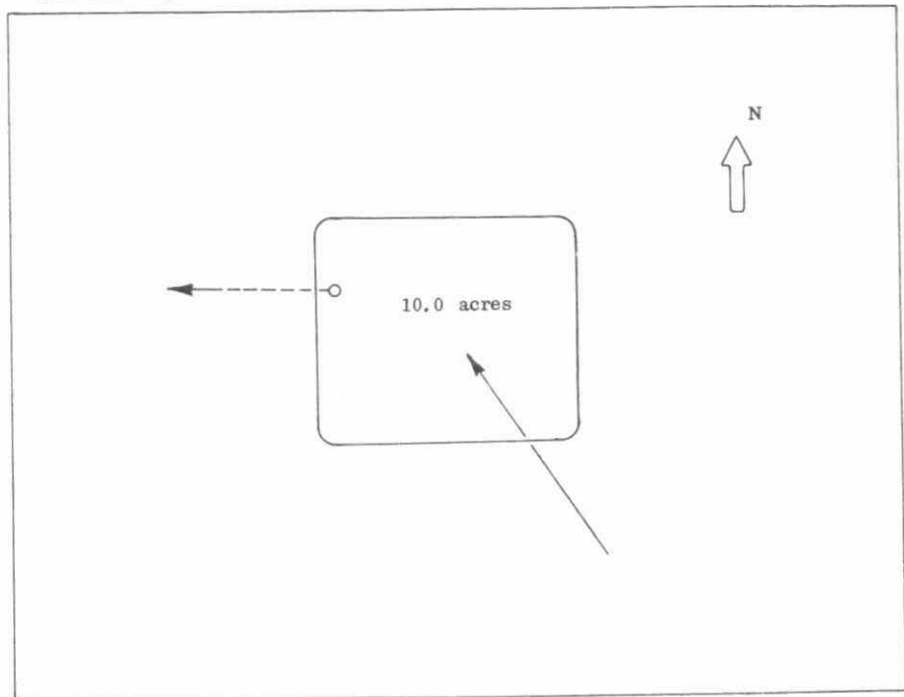
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 250 I gpm
Pump 2 : 250 I gpm

Total Cap : 250 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	1.65	.053	.060	90		26	94		19	5.8		2.6	39		20
FEB	1.82	.063	.120	74		21	179		23	7.3		3.6	35		27
MAR	7.10	.229	.240	58		34	100		49	4.0		2.5	17		35
APR	9.93	.331	.720	34		6	25		8	1.2		0.4	5.8		3.6
MAY	2.86	.092	.195	124		20	148		36	3.7		0.8	13		6.3
JUN	1.42	.047	N/A	135	8	6	213	8	5	7.4	0.6	0.6	40	3.0	3.2
JUL	1.58	.050	.105	19	7		92	11		2.1	0.6		16	2.9	
AUG	1.44	.046	.075	50	20		89	15		2.2	0.9		14	5.6	
SEP	est. 1.50	.050	N/A	100	18	15	175	39	16	5.9	0.9	0.8	29	5.3	6.7
OCT	est. 1.24	.040	N/A	100	20		145	46		6.0	1.1		23	9.0	
NOV	est. 1.20	.040	N/A	77	20		133	46		2.9	0.7		12	5.4	
DEC	est. .70	.023	N/A	220	13		120	29		9.6	2.2		120	10.0	
TOTAL	32.44														
AVG.		.089		94	15	20	132	30	30	5.1	0.7	1.8	32	6.4	16.0
MAX.			.720												
NO. OF ACRES	10	Number of samples		22	12	13	22	12	13	22	12	12	22	11	13
LOADING lb/acre/day	8														

Waste Stabilization Pond

PROJECT : WEBBWOOD

508

Cell Acreage : 10 Acres

Total Acreage : 10 Acres

Operation :

- Series
- Parallel
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

Flow Measurement :

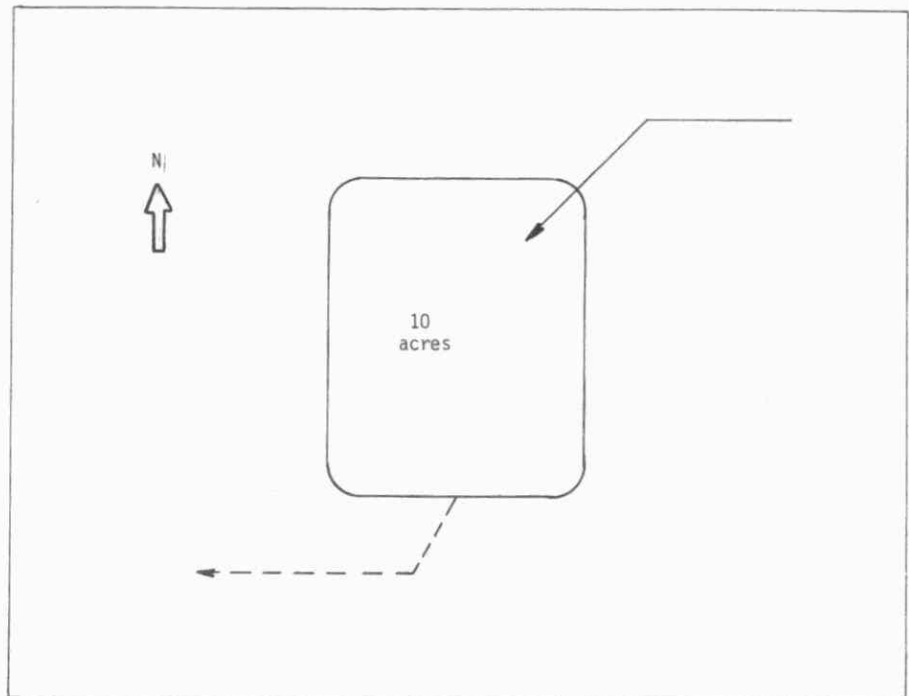
- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 200 I gpm

Pump 2 : 200 I gpm

Total Cap : 200 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mil Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN	.286	.009	.010	300			167			15.0			91		
FEB	.267	.010	.013	1300			757			15.0			95		
MAR	.473	.015	.032	975			204			17.0			250		
APR	.591	.020	.038	150	22		75	125		8.8	1.9		61	10	
MAY	.429	.014	.021	180	15		101	48		13.0	0.9		74	6	
JUN	.360	.012	.013	220	60		119	107		13.0	2.9		95	17	
JUL	.374	.012	.017	120	18		64	55		11.0	1.2		67	8	
AUG	.370	.012	.020	240	17		170	84		12.0	1.7		69	11	
SEP	.369	.012	.016	180	5		145	11		11.0	0.4		59	4	
OCT	.436	.014	.020	200	4		85	10		12.0	0.4		80	3	
NOV	.591	.020	.043	180			85			8.7			77		
DEC	.588	.019	.046	240			230			15.0			90		
TOTAL	5.134														
AVG.	.428	.014		457	20		354	63		13.0	1.3		92	8	
MAX.			.046												
NO. OF ACRES	10.7	Number of samples		15	7		14	7		14	7		14	7	
LOADING lb/acre/day	6														

REGION 6
Northwestern

Waste Stabilization Pond

PROJECT : EMO TWP.

510

Cell Acreage : 10

Total Acreage : 10

Operation :

- Series
- Parallel (Single Cell)
- Other :

Discharge :

- Seasonal
- Continuous
- Annual
- Other :

Phosphorus Removal:

- Batch
- Continuous
- None

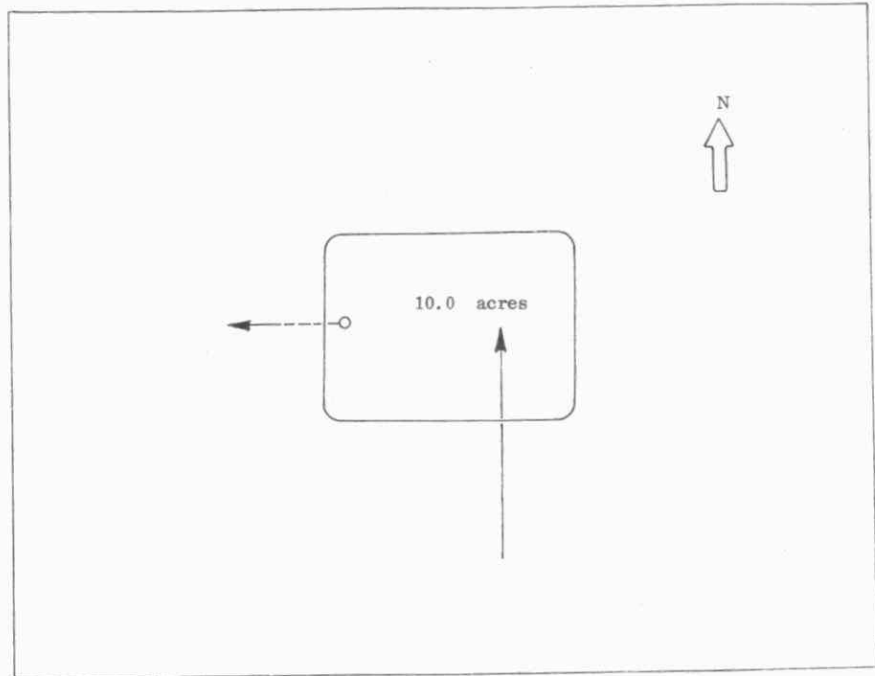
Flow Measurement :

- Flow Meter
- Integrator
- Pump Timer

Pumping Station

Pump 1 : 250 I gpm
 Pump 2 : 250 I gpm

Total Cap : 400 I gpm



MONTH	FLOWS			BOD			SUSP. SOLIDS			T. PHOSPHORUS			T. KJELDAHL		
	TOTAL FLOW Mjl Gal	AVERAGE MGD	MAXIMUM MGD	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l	INFLUENT mg/l	CELL CONTENTS mg/l	EFFLUENT mg/l
JAN															
FEB				120			140			6.4			46		
MAR				100			85			8.0			60		
APR															
MAY				350		13	1890		30	15.0		3.0	78	17	
JUN						34			72			2.6		11	
JUL															
AUG															
SEP				140			290			7.7			38		
OCT															
NOV						4			21			2.0		12	
DEC															
TOTAL															
AVG.				177		14	601		34	9.2		2.6	55	13	
MAX.															
NO. OF ACRES	10	Number of samples		4		33	4		33	4		33	4	33	
LOADING lb/acre/day															

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